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CLOUDS FORM, BUT FORECAST UP IN THE AIR

BY ROBERT MULLINS

Thomas Edison invented the light bulb in 1879, but it took about 30 years for an electric utility industry to form and deliver what today one might call electricity “in the cloud.” Guy Creese believes history will repeat itself with cloud computing—and it might take another three decades.

“I would say if you end up ... dismissing cloud computing out of hand, you’re making a mistake,” said Creese, an analyst at Burton Group.

After the entrance of large players such as Amazon’s Elastic Compute Cloud (EC2) and, more recently, a preview release of Google’s App Engine, some cloud computing initiatives used last month’s Web 2.0 Expo in San Francisco as a launching pad.

To those players, cloud computing makes sense for the same reasons it made sense for homes and businesses to get electricity from a

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Deal could create code search powerhouse

Black Duck buys Koders’ assets, including search engine

BY ROBERT MULLINS

In a deal with broader implications for the integration of code search and development, Black Duck Software has acquired the assets of Koders, including its source-analysis tools and Koders.com search engine for open-source code.

For Black Duck, the move could fortify the company’s open-source life-cycle management product and service portfolio.

At least one industry executive likened the deal’s impact on code search to Google’s effect on search in general. “There’s a lot to be said



‘An excellent reputation with the open-source community,’ Koders serves 30,000 developers a day and can search 766 million lines of code in more than 30 languages.

—Douglas Levin, president and CEO of Black Duck

for the integration into the tool that you’re using,” said Theresa Lanowitz, founder of Voke, an independent analyst firm. “If the developer doesn’t have to go out and seek out something separate in some other code search envi-

ronment, everything is just built right into your workbench.”

Code management is a difficult task, Lanowitz explained, because developers find more open-source code being used and reused, code coming from

multiple sources, and complicated licensing agreements that must be observed. “Black Duck is in a good position to solve these code problems before they become pervasive,” she said.

The Koders.com site—which serves 30,000 software developers daily and can search 766 million lines of code in more than 30 code languages—will augment Black Duck’s Code Center service for selecting, approving and tracking code, as well as its protexIP system for maintaining compliance with licenses required for differ-

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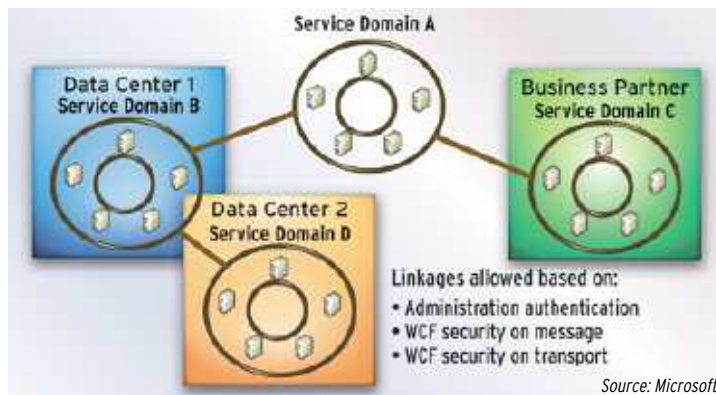
‘Oslo’ prototype manages composite applications

BY DAVID WORTHINGTON

Without fanfare, Microsoft lifted the lid on a prototype composite application technology from its stealthy “Oslo” initiative.

Configuration Service 2.0—a Windows Communication Foundation (WCF) service for managing composite applications—was made available on Microsoft’s MSDN site late last month. The service is a companion to Microsoft’s StockTrader 2.0 SOA sample application but serves a broader role in the context of Oslo by managing the configuration of loosely coupled services.

Oslo is a multiyear effort to develop technology to help customers build, deploy, design and manage composite applications.



Can Configuration Service 2.0 take model-drive development to mainstream?

Its main objective is to take model-drive development into mainstream application development.

Oslo is expected to influence the next generation of Microsoft’s application platform, including

BizTalk Server release 6, BizTalk Services release 1, .NET Framework version 4, Microsoft System Center release 5 and Visual Studio release 10—all of those

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These Nokia phones use S40 software.

Nokia’s mobile road map dials up confusion

BY ROBERT MULLINS

As newly reorganized Nokia introduces developers to its services and software initiative to build applications to run on their phones, key questions persist about how developers will work with the company.

Until the company’s pending acquisition of Trolltech closes, developers cannot be sure which

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Flash becoming more transparent platform

Adobe lifts licensing restrictions and begins documenting specs

BY DAVID WORTHINGTON

The new watchword at Adobe is "openness." The company is lifting restrictions and publishing technical information on its Flash technology, in a bid to attract more developers and content providers to the platform.

Adobe last month announced Open Screen Project, a partnership with other industry heavyweights, to establish a consistent Flash runtime for all devices and to broaden adoption of the technology.

The initial checklist for the project is to remove restrictions on using the SWF and FLV/F4V file formats that refer respectively to multimedia graphics and video-specific tasks, publish the device porting layer APIs for Adobe Flash Player, publish the Adobe Flash Cast protocol for data services, and eliminate licensing fees for the next major releases of



Adobe Flash Player and Adobe AIR for devices. Back in December, the company had published the Action Message Format (AMF) protocol.

Adobe Flash Cast delivers multimedia portal content to mobile devices, and AMF exchanges data between an Adobe Flash application and a database.

"We are removing all license-

use restrictions from the SWF [file format] specification," said David McAllister, director of standards and open source at Adobe. He added that the FLV/F4V and SWF formats would be made available under a reasonable and non-discriminatory license, granting users all essential patent rights in perpetuity.

The device porting layer APIs are used by handset mak-

ers to port Flash to their devices; previously, it was available only under closed-license agreements. Opening the APIs would let OEMs port Flash to new devices without access to Adobe engineering, said McAllister.

In the same vein, he noted that Adobe would remove all C structures for Flash and AIR on devices. Adobe AIR is a runtime for creating rich Internet applications built using Adobe Flash, Adobe Flex, AJAX and HTML that can also be deployed as desktop applications.

'NOTCHES OF OPENNESS'

"It is not a monumental announcement, but it provides several notches of openness," said Al Hilwa, program director for application development software at IDC. "The anchor piece is the openness of protocols and removal of licensing fees; it will win [Adobe] a lot of

goodwill and partnership."

In February, Adobe took a preparatory step toward openness, when it open-sourced its BlazeDS data services for its Flex software development kit.

Although Adobe's Open Screen Project has leapfrogged what competitors have done, Hilwa observed, there will be more of a move toward openness of protocols and languages in the industry, as developers cry for a single platform or set of APIs, frameworks and tools that would work across devices.

Asked whether Adobe was responding to the emergence of Microsoft Silverlight, McAllister said that was not the case, asserting that the open sourcing of components inside of Flash has been "going on for a while."

"There is a battle shaping up over the next universal platform, and Adobe is in play there," he added. ■

Microsoft's distribution of XP Service Pack 3 hits snag

BY DAVID WORTHINGTON

Microsoft has finished the third Service Pack for its aging but still useful Windows XP operating system; however, its distribution has already hit a snag.

On April 21, Windows XP Service Pack 3 (SP3) was released to manufacturing. It was scheduled for release to the Web on April 29, but a last-minute snafu occurred that day, when Microsoft identified a compatibility issue between SP3 and its Dynamics Retail Management System (RMS) software.

A spokesperson said that Microsoft would delay releasing SP3 to the Windows Update and Microsoft Download Center sites until a filter was in place to prevent Windows update from offering the service packs to Dynamics RMS customers. It also recommends that those customers refrain from installing Windows Vista Service Pack 1, which suffers from the same problem.

Microsoft will notify customers when it has published a fix for the compatibility issues.

Distribution through the company's automatic updating services will begin early this summer, according to the company spokesperson. SP3 had

already been made available to MSDN and TechNet subscribers and was also available through an unpublicized but freely accessible link to the Microsoft Web site.

Nearly four years have passed since Windows XP Service Pack 2 was introduced to remediate highly publicized

security woes. Service Pack 3, by contrast, does not introduce any sweeping changes.

But SP3 will establish a new baseline for Windows XP, bringing together many fixes released since SP2. It will include Network Access Protection (NAP), a security mechanism that is built into Windows Server 2008

and Windows Vista.

The inclusion of NAP is verification that Microsoft expects Windows XP to be used as a client with Windows Server 2008 for at least the next two to four years, said Yankee Group senior analyst Laura DiDio.

DiDio noted that compatibility issues associated with Win-

dows Vista guarantee a prolonged life cycle for Windows XP.

"They understand the user mind-set and have been hearing the complaints. I expect that XP will be around for a good long time, and for it to remain viable, Microsoft will have to make the necessary upgrades, patches and enhancements," said DiDio. ■

TOOL UPGRADE IMPROVES JAVA-.NET HARMONY

BY ROBERT MULLINS

Although Java and .NET are thought of as a twain that will never meet, the simple fact is that there's a demand for tools that allow Java and .NET to work together. One company is throwing away the idea of translating Java into .NET and betting on its bridge-building skills.

JNBridgePro 4.0, released on May 7, introduces plug-ins for the Java-based Eclipse IDE and the Microsoft .NET-based Visual Studio IDE. The JNBridge tool creates proxies for Java code classes to run in a .NET environment and .NET proxies to run via Java.

What's new is that the proxy tools run directly in Eclipse or Visual Studio, eliminating the

need for a developer to leave his preferred IDE to find the proxies, said Wayne Citrin, CTO of JNBridge.

"You can keep working in your development environment, and the proxy-building environment becomes part of the development environment and the whole build cycle," Citrin said.

JNBridge's interoperability tool enables .NET code to run in Java and Java to run in .NET, by sending messages across a bridge between the two in a language the company created that both Java and .NET understand, Citrin added.

This is an alternative to other tools that "translate" Java into .NET and vice versa, presenting a risk that something could get lost in translation.

"The act of translation can introduce errors, and there are maintainability problems as Java and .NET evolve," Citrin argued. But with JNBridge's approach, "the messages are being translated, but the underlying code is not."

The 4.0 upgrade also includes full 64-bit support and a data compression/decompression feature so that messages can be transmitted more quickly.

Demand for the new interoperability tool came, in part, from ISVs that want to expand the market for Java-based APIs into the .NET framework, Citrin explained. For example, Hungarian firm ChemAxon, which specializes in APIs in the pharmaceutical industry, developed a Java graphical widget to



Citrin: Messages get translated, but the underlying code does not.

visualize molecules in research.

"They want to sell to a much bigger market than just the Java market ... they used our technology to wrap that Java widget into .NET, and now they can sell it to .NET users," Citrin pointed out. ■

Developers embracing Ruby as alternative to Java, .NET

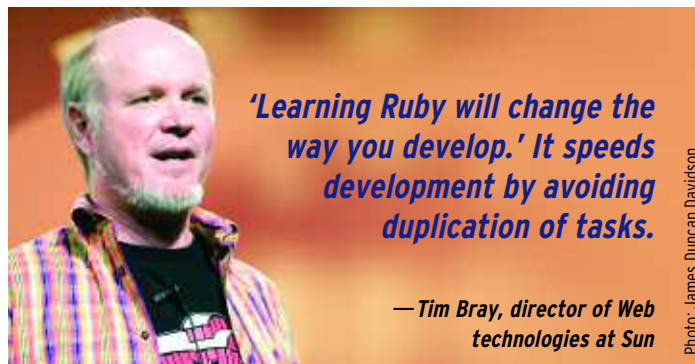
BY ROBERT MULLINS

SAN JOSE — A Sun Microsystems software guru said last month that Ruby and Ruby on Rails have their shortcomings, but they are gaining traction among developers, especially as an alternative to Java, .NET and PHP for writing Web applications.

"Learning Ruby will change the way you develop," Tim Bray, director of Web technologies at Sun, told an audience of about 100 developers at the Software Development Forum's third annual Silicon Valley Ruby Conference last month.

Although he couldn't cite any statistics other than a chart of sales of books on various programming languages, according to Bray, Ruby has become "the fastest-growing tool" in the past 18 to 24 months.

Ruby and its derivative, Ruby on Rails, are ideal for writing Web-based applications, particularly the more robust and interactive ones popular today with consumers and enterprises, Bray said. It speeds development by avoiding duplication of tasks and creating default set-



tings for certain application functions to save developers from having to write as much code. Bray also argued that software written in Ruby/Rails is easier to maintain after the application is up and running.

PHP, on the other hand, may have greater market share but also some significant flaws, he continued. For example, PHP has a low barrier to entry in terms of required programming experience, but security flaws make it "frighteningly vulnerable," and serious maintainability and integration issues remain.

Still, successful blog, content management and wiki applications have been developed on PHP, he acknowledged.

Bray was challenged on his

PHP criticism by one audience member who suggested the flaws could be more of a problem with the framework than the PHP language itself.

While promoting Ruby, Bray acknowledged that its biggest flaw is performance. Code written in Ruby is interpreted rather than compiled, as are most other languages, which makes Ruby run slowly. There are solutions available or in development to speed up Ruby, such as JRuby for Java Virtual Machines, Rubinius, IronRuby from Microsoft and a coming product called MagLev.

Ruby and Ruby on Rails are not suited for an IT institution already committed to writing in Java or Microsoft's .NET, Bray

warned, adding that because Ruby is relatively new, it's hard to find experienced developers to hire. It is also not suited for applications that involve a lot of computation, such as rendering video or complex financial or scientific applications.

Despite those shortcomings, Ruby and Ruby on Rails deserve a closer look in some enterprises, said John Woodell, a Ruby programmer at Google.

"Ruby just sort of works, and it works very efficiently and elegantly," Woodell said during the SD Forum.

But when Google last month introduced a preview release of App Engine for developing applications and hosting them on Google's network, the company said that it initially would only support applications written in Python. That's to be expected, Woodell said, as Python creator Guido van Rossum has been working at Google since late 2005.

Woodell said that he hopes Ruby will be the next language App Engine supports: "There are people at Google trying to figure out where Ruby is appropriate." ■

STRIKEIRON TURNS 'DATABASE AS A SERVICE' INTO NEW PLATFORM PRODUCT

BY ROBERT MULLINS

StrikeIron built on the database-as-a-service trend last month when the company introduced a platform-as-a-service offering.

The platform-as-a-service concept is designed to help enterprises bring together data from multiple sources and distribute it through a Web-based application to co-workers, partners, customers and the public without requiring the enterprise to install or maintain any hardware or software.

StrikeIron's IronCloud Web Services Delivery Platform includes access control, custom APIs, multi-data source integration, multiple IDE and code language support. The company made the announcement during the Web 2.0 Expo in San Francisco.

StrikeIron has been serving the database-as-a-service market with its StrikeIron Marketplace, a collection of 100 database services sorted by IT or business function and sold on a subscription basis.

IronCloud extends the Marketplace database service to offer complete life-cycle management of building and delivering Web applications and services in the cloud, said David Linthicum, named early last month as chief executive officer of StrikeIron. (Linthicum is also a regular columnist for SD Times.)

KEEP FOCUS ON DATA

"Customers can focus on their data, not the infrastructure needed to deliver that data to the emerging Web," he said in a prepared statement.

By entering the platform-as-a-service market, StrikeIron is competing against several big players: Amazon.com with its Elastic Compute Cloud; Bungee Connect, which also announced new features at Web 2.0 Expo; Google, which announced a preview release of its App Engine platform last month; and Salesforce.com, with its Force.com service, which was launched in September. ■

Preemptive action hopes to make SOA more reliable

Tibco's platform promptly scales services

BY DAVID WORTHINGTON

A SOA infrastructure software maker has decided that good governance means taking preemptive action to head off service problems.

Tibco Software late last month announced Service Performance Manager (SPM), an add-on to its ActiveMatrix platform that uses complex event processing to monitor the performance of IT systems in SOA environments.

SPM is not a standalone product, but instead integrates into ActiveMatrix's existing administrative interface. It will become available for ActiveMatrix users by the end of May, according to the company.

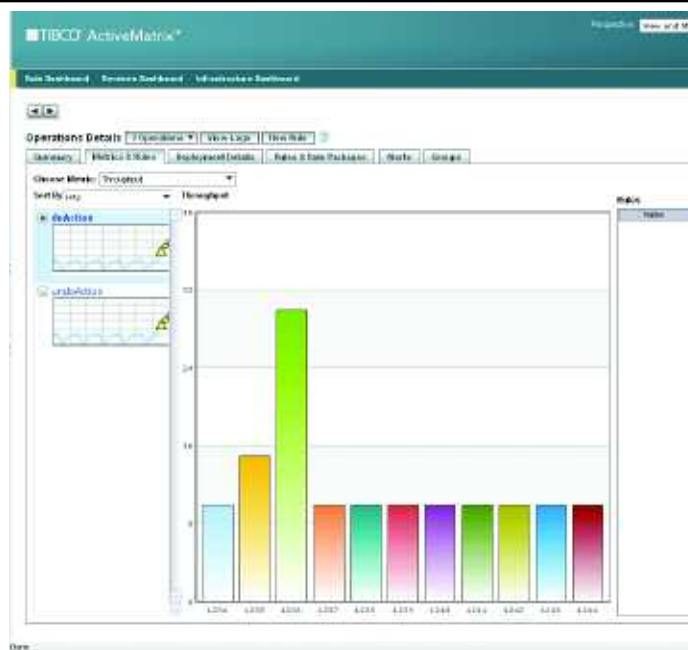
Rourke McNamara, director of SOA product marketing

at Tibco, explained that service reuse has made understanding the load profile of a particular service a challenging task.

"Companies are being as agile as possible about scaling service. That's not good enough if business users are complaining. Even if you are very agile, users still have slow-running applications," he said.

SPM works by exploiting the ActiveMatrix platform's existing dependency mapping capability, he noted. The SPM events engine monitors the IT environment to predict when affected applications will be heavily loaded and proactively rearranges services to scale for periods of increased demand.

Users may define service-level agreements (SLA) and



Complex event processing helps differentiate normal system behavior from unexpected work in monitoring the performance of IT systems.

business rules to specify service quality objectives. SPM can distinguish among SLAs to provide the appropriate level of service for different tiers of users.

SPM, McNamara pointed

out, "has the ability to look into the payload of a message or service invocation. Based on different SLAs, customers can partition resources appropriately" when defining business rules. ■

COMPLETE YOUR DATA VISUALIZATION AND REPORTING TOOLBOX

Being a developer is about making things work, pulling together requirements and architecting solutions. This can mean tying components together to access and present data, completing business functions, or integrating disparate systems. For many, creating compelling visual models and engaging reports is a tedious process that only makes the job that much harder. It might not be so bad if end user requirements were static, but unfortunately, that's not always the case. Successful application developers gain that status, in part, because they are able to answer the problem of data presentation and the challenge of changing user requirements.

For more than a decade Business Objects, an SAP company, has been helping developers solve these problems. Now they are making data presentation solutions more accessible by providing one of the world's most popular reporting tools and their latest dashboard technology bundled together at one low price. The Crystal Reports® 2008 Visual Advantage bundle includes: Crystal Reports 2008, a standard reporting solution for many organizations, and Xcelsius® 2008, a leading point and click dashboard tool, at a suggested list price of \$995 USD (a savings of almost \$400).

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Xcelsius 2008 is a Flash-based tool that enables developers and users of different skill levels to create rich, engaging dashboards within a point-and-click design environment. With ready to use visual components, gauges and maps developers can quickly create dashboards that combine data from multiple data sources with scenario analysis and what-if modeling. The final dashboard is compiled into an SWF file which can then be called from .NET and Java™ applications or integrated into Microsoft Office, PDF, and corporate portals.

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Access data via Web Services, XML, Crystal Reports or Excel		✓
Deployment		
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Deploy or distribute with your application to unlimited CPU's and Servers	✓*	✓**
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Embedded Xcelsius models can also leverage Crystal Reports data connectivity using the report as a data source and dynamically update the dashboard model. This enables Crystal Reports users to look beyond today's data and analyze what the future could bring.

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Platform attacks 'bloat' of legacy Java app servers

Open-source technologies, modular design reduce memory footprint

BY ROBERT MULLINS

SpringSource is introducing a Java application platform intended to alleviate the per-

ceived "bloat" of legacy Java application servers.

The SpringSource Applications Platform, its beta un-

veiled on April 30, is intended as a simpler alternative to the way in which Java applications are created. The platform is

built on a combination of open-source technologies—Apache Tomcat, the Eclipse IDE, OSGi and the Spring

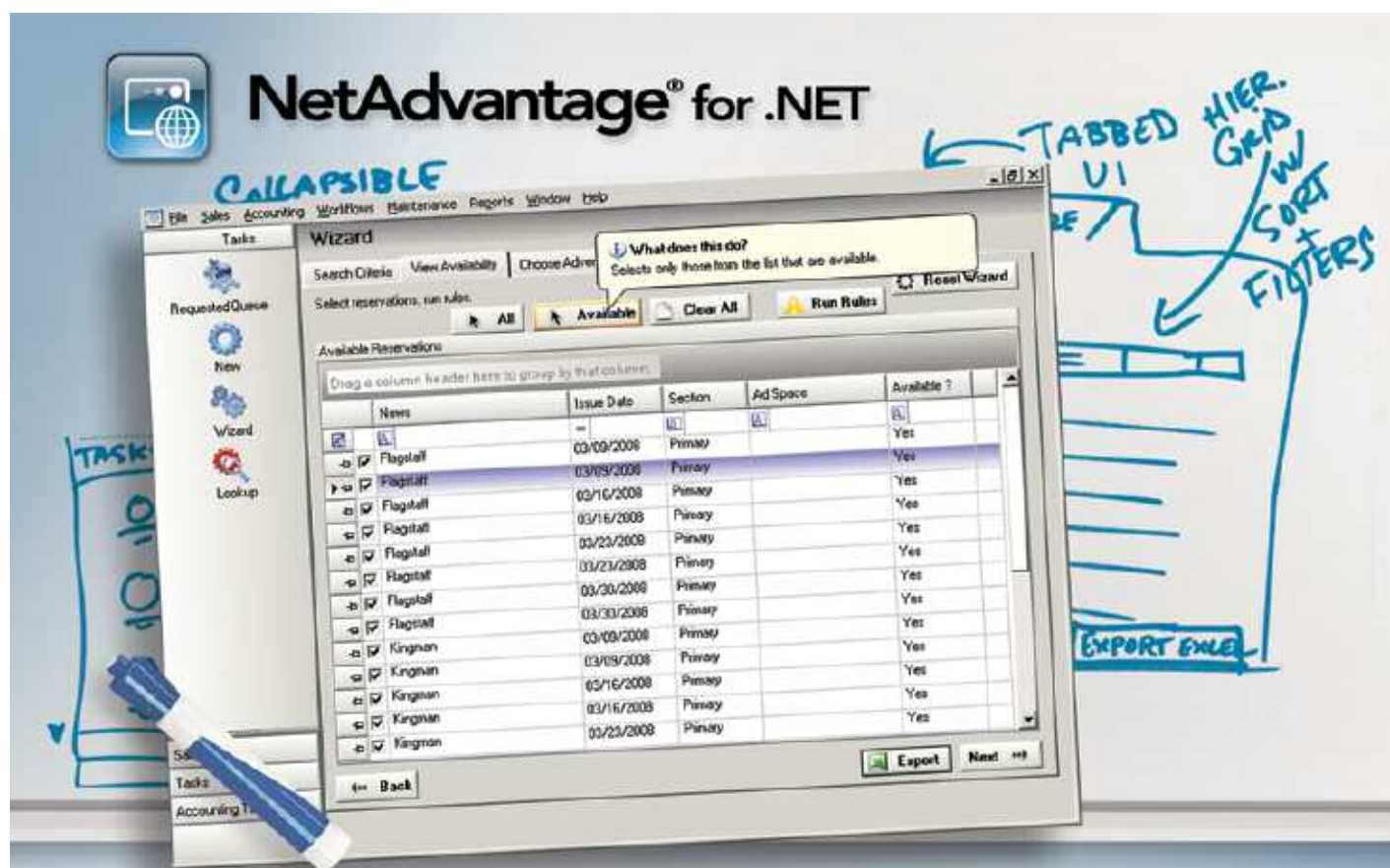
Framework—that is designed to create a complete enterprise application stack for developing, deploying and maintaining Java applications, said Rod Johnson, CEO of SpringSource, the commercial sponsor of the Spring open-source framework.

The key to the SpringSource Application Platform's appeal is its modular design, said Johnson.

By building a middleware kernel on top of OSGi, the platform enables the server and the end user application to be broken up at "an appropriate level of modularity," he explained. "This provides advantages like a smaller memory footprint, extremely fast startup time, and the ability to upgrade parts of the application on the server at runtime without having to take down the server."

The beta release is to be followed by the availability of both open-source and commercial versions of the platform sometime during June, SpringSource said.

SpringSource made another effort to ease Java complexity in March with the beta release of the SpringSource Tool Suite, based on the Eclipse Mylyn project, which is aimed at reducing information overload in Spring IDE software development by identifying only the information relevant to the task at hand. The suite also includes issue tracking support and code quality analysis tools. SpringSource joined the Eclipse Foundation in March. ■



Real Solutions for Real Challenges.

Data Resolution, a provider of Enterprise Business Solutions for small to mid-sized businesses, was building Microsoft® Windows Forms business applications but found the included platform tools difficult to use and time consuming. "We really needed something that was a plug and play solution and that was easy to code," said Jason Mindte, Data Resolutions' Principal and Technical Manager. Data Resolution chose to fill their component toolbox with Infragistics NetAdvantage for Windows Forms.

"When we first used NetAdvantage, it was so easy. The coding is straightforward and easy to implement," said Mindte. "I especially love the WinGrid"—it has such flexibility." Mindte also appreciates the NetAdvantage subscription model, having utilized every Windows Forms tool NetAdvantage offers. "What used to take 4 hours now takes us minutes," said Mindte. "We can recover the cost of the product within a month." Saving ten to fifty percent of their time drives down the cost and makes new bids more competitive.

Data Resolution has experienced a significant return on their investment, also utilizing NetAdvantage AppStylist® for each project. But the real bottom line for Data Resolution is how it helps them maintain a high level of service for their customers. "The Infragistics tools do everything our customers want," said Mindte. "When our customers see all the feature-rich code we built for them using NetAdvantage, they love us."



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Open Solaris extended to storage

Sun rolls open-source developer tools, support services, community support

BY ROBERT MULLINS

By introducing developer tools, professional services and community support, Sun Microsystems hopes to bring the "open-source revolution" to data storage to match the changes wrought in the server market.

The company launched a series of initiatives late last month to continue its OpenSolaris campaign, which aims to release the source code to the Solaris operating system, to nurture an open-storage community and to spur development of storage management applications.

Today, storage systems are largely closed and proprietary, said John Fowler, executive vice president of the systems group at Sun. That was the case with servers in the past, he noted, but the field opened up when Advanced Micro Devices became a serious competitor to Intel's dominance of the CPU market and when Linux emerged as an open-source server operating system.

Stars of the dot-com era, such as Google and Yahoo, built their networks on open-source Linux. Others, meanwhile, including Red Hat and Novell, built or refocused their businesses on Linux-based operating systems and support.

'STORAGE REVOLUTION'

"What we are doing is taking our products and technology, and we are going to lead storage through that same revolution," said Fowler.

Sun is building into the open-source version of Solaris the core elements of storage software, he explained, indicating developer tools, recipes and how-to guides for creating various applications.

Developers in the 3,000-member OpenSolaris storage community will be able to develop storage software along a variety of paths, including 10Gb Ethernet, Fibre Channel or InfiniBand network communication; network-attached storage appliances; and RAID storage volume management. Fowler noted that those cutting-edge technologies are core to the storage world and traditionally

have come with a price tag in terms of both cost and vendor lock-in.

The OpenSolaris storage community is already working

on more than 30 projects. DigiTar, a service for screening, securing and storing e-mail and other messaging technology, uses OpenSolaris for storage,

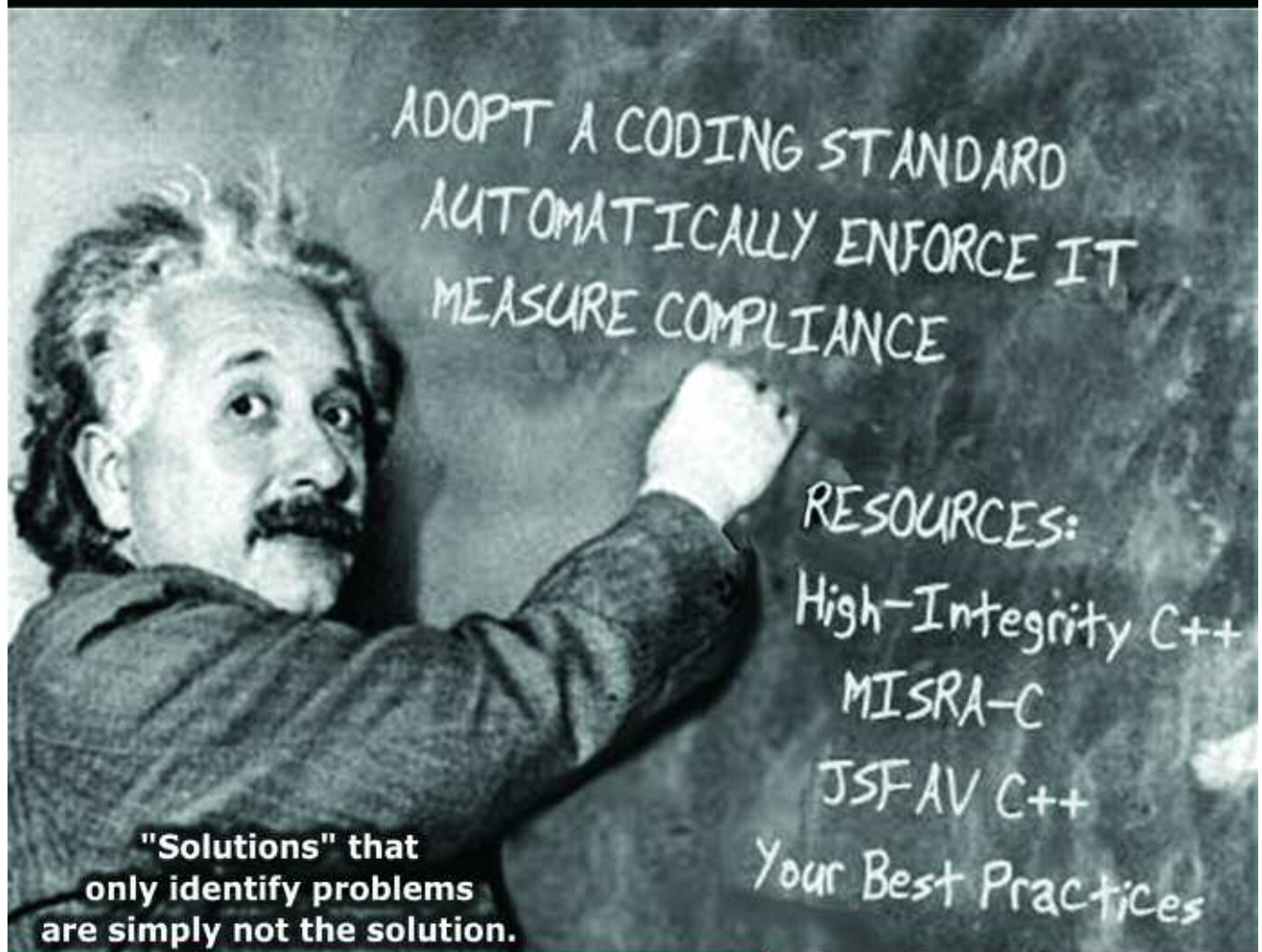
explained CTO Jason Williams on his company blog.

"[OpenSolaris] allows you to build reliable storage out of commodity components, [so]

you can build the storage architecture you need, instead of being held hostage by the one you can afford," Williams wrote. ■

Intellectuals solve problems. Geniuses prevent them.

— Albert Einstein



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Bungee moves platform to cloud computing

Will host applications or deliver virtual image for client to run on its own network

BY ROBERT MULLINS

Bungee Labs, a platform-as-a-service provider, is offering two options for hosting applications created on its developer plat-

form, in an effort to serve enterprises that want to keep their applications on their own network as well as those with their heads in cloud computing.

Bungee is offering to host applications on either of two data centers it operates, plus a third grid it offers through Amazon's Elastic Compute Cloud

service. But for those not comfortable hosting sensitive applications in the cloud, clients can take the application developed on Bungee's platform as a virtu-

al image and run it on their own network, the company said last month at the Web 2.0 Expo in San Francisco.

"If your requirements state that you need to host the app yourself, you now have a virtual appliance called the Bungee Application server," said Brad Hintze, product marketing director for Bungee.

The Bungee Application Server, based on the VMware application server, can be run in the client's own network as a virtual image, Hintze said, for US\$500 per image per month. If the client prefers the cloud computing method, Bungee will host the application on one of its own data centers—it owns one each in the U.S. and Europe—or on Amazon's EC2 cloud, access to which Bungee resells.


The hosted options are billed at a rate of 6 cents per user-session hour, meaning that the application's owner is only billed when an end user actually accesses the application, said Dave Mitchell, CTO and founder of the year-old Bungee Labs. He contrasted the Bungee model with that of cloud providers that charge a flat monthly rate even if no one uses the application.

Hintze noted that Bungee charges nothing for use of its Bungee Connect developer platform, an integrated development platform for creating, testing and deploying an application, designed to simplify the process as much as possible.

"One of the biggest challenges facing Web developers is that there is a tremendous amount of work that they must do to build and deliver a Web application, but it lends no value to the applications," Hintze explained. "Our motto is 'Build the app, not the crap.'"


For instance, he continued, applications are built on the AJAX framework, but developers need not write actual AJAX code. Also, features such as cross-browser compatibility, database integration, security and others are managed on the Bungee Connect platform.

Bungee joins Amazon, Google App Engine, Salesforce.com and others in the growing area of cloud computing, in which applications are created and hosted over the Internet. ■



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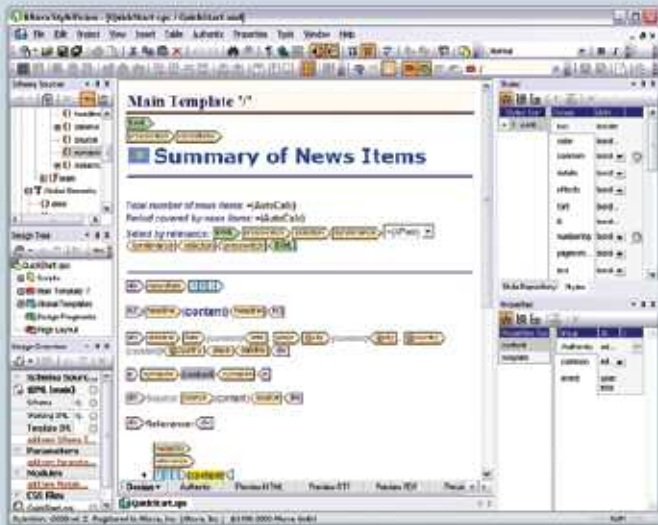
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Add security tests to QA, analyst urges

BY ROBERT MULLINS

SAN MATEO, Calif. — Testing the security of software applications should be part of the software development, not an afterthought. But one security analyst says that's easier said than done.

Danny Allan, an IBM security researcher, made the case last month for advancing security research for software applications at the Software Test & Performance Conference.

Citing Gartner research, Allan argued that while 75% of IT attacks are targeted at applications, 90% of IT security spending goes to securing the network, not the applications.

For instance, 86% of Web application attacks use cross-site scripting, Allan explained, which allows an attacker to inject malicious code through a Web application and potentially subvert access controls.

Heading off cross-site scripting or other vulnerabilities requires testing the security of the application at the same time that developers test the functionality, he said. Security should be integrated into quality assurance, and security defects should be logged along with other defects discovered in the process. Regression testing, used to determine how changes in a program might create bugs, should also be used to reveal security bugs.

"Security issues are nothing more than code quality issues," Allan emphasized.

RESISTANT TO CHANGE

Yet at least one conference attendee said some organizations adhere to a traditional process of developing the software, then testing it for security.

"I'm the first one to talk about it," said David Craft, a security analyst with the California Employment Development Department, which distributes unemployment benefits in the state.

"Security needs to be deeper in the process," Craft said. But, to others in his department, "It's all brand new."

Microsoft's WCF Security Guidance Project is also developing a set of best practices that includes security testing of applications using Windows Communication Foundation, a .NET-based programming framework. The project's home page, www.codeplex.com/WCF-

Security, is hosted by the company Web site.

The WCF 3.5 Security Guidelines offers tips for developing and maintaining the security of .NET applications,

according to a blog posting by J.D. Meier, a Microsoft software engineer.

"Customers find the guidelines help them cut through a lot of information and take

action," Meier wrote.

If organizations continue to test security features only after the application has been completed, "we will always be chasing a train that has long ago left

the station," said IBM's Allan.

The Software Test & Performance Conference, held April 15-17, was hosted by BZ Media LLC., which also publishes SD Times. ■



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Tool builds AJAX apps without writing code

BY ROBERT MULLINS

There's another entry in the competition to create developer-quality tools that can be used by non-developers.

Alpha Software last month

released the ninth version of its Web database development platform, which it says allows developers to create AJAX Web-hosted applications without having to write actual code.

Alpha Five Platinum Edition allows AJAX applications to be built and SQL databases to be integrated using drag-and-drop, the company said.

Though Alpha Five lets users

create AJAX applications without deep knowledge of JavaScript, XML or the AJAX framework, it also offers access to source code to more-experienced developers, said Richard

Rabins, Alpha Software's co-chairman.

Among the 85 new features in version 9: Active Link Tables, which combines multiple SQL databases into one; an Intelligent Query Optimizer, which determines whether filtering and sorting should be done on the client computer or the server; and Supercontrols, which lets developers embed hyperlinks, Web content and other features in their database forms.

"If you can build a modern Web 2.0 application in less time, you can charge [your clients] less because it takes less time," he said.

Alpha Five Platinum supports major database brands, including EnterpriseDB Postgres Plus, IBM DB2, Microsoft SQL Server, MySQL and Oracle.

Pricing for the new release starts at US\$399 per user, and upgrades go for \$299 per user. Bundled pricing and volume discounts, as well as upgrade pricing, are available.

Alpha also offers an application server for Web deployment of applications built with the IDE for \$699. The application can also be deployed exclusively on a corporate network just like any other desktop application. ■

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CURL BRINGS RIAs TO THE DESKTOP

BY P.J. CONNOLLY

Desktop-based rich Internet applications may be the big buzz of 2008, and one company is jumping into the mix with tools that try to bridge the gap between the desktop and "traditional" RIA.

Curl last month rolled out a beta release of its "Nitro" extension to its RIA platform, which lets developers use the company's namesake RIA framework for desktop-hosted and network-delivered applications.

Nitro, due for a full release by the end of 2008, allows applets to be installed on the desktop in what the company calls a secure sandbox. The same security model used with any other Curl applets would apply, with the usual user interface accommodations.

Nitro also incorporates the open-source SQLite database engine for local deployment, which is used with Curl's standard data presentation and manipulation techniques. The beta works with Linux, Mac OS X and Windows systems. ■

Klocwork turns to open source to enhance static analysis

BY DAVID WORTHINGTON

A static analysis software maker has turned to open source as a key part of its strategy to extend the versatility of its solution with community-developed concurrency checkers.

Klocwork recently launched the Klocwork Checker Exchange for its customers to discover and share custom source-code checkers that work with its Insight static analyzer. A tool-chain called Checker Studio was released as well.

The checkers ferret out problems in code that has been run through Klocwork's proprietary static analysis engine. Klocwork is trying to kick-start Checker Exchange by releasing the source code for several families of its checkers, starting with COM, MISRA and Symbian.

Checker Studio would streamline checker creation, said Gwyn Fisher, Klocwork's CTO. He described it as a set of work-along tools that developers could use as a reference base as they work in their IDE of choice.

Eventually, Checker Studio will evolve into a full Eclipse-derived IDE to simplify checker development. "We always had APIs for people to pick up themselves, but there was a high learning curve and high degree of [Klocwork's] investment. Now people outside of Klocwork can do it," said Fisher.

The company views Checker

Exchange as an opportunity to engage customers while protecting its core intellectual property. "We created Checker Exchange for customers to share code, ideas, tips and tricks. They can

create and find checkers that support new coding standards and platforms," Fisher said.

In turn, Klocwork will incorporate community-developed checkers into its QA

process and validate them with each subsequent release of its engine, he said. The checkers would be unlicensed software, restricted by the fact that they work only with Klocwork's

analysis engine.

Fisher noted that Klocwork prefers a license-free caveat emptor environment in which creators abrogate their IP rights and checkers lack a warranty. ■


JAVA TOOL KEEPS EYE ON CLUSTERS

BY P.J. CONNOLLY

Managing a clustered Java environment well is vital to ensuring that an application's performance meets expectations. Without visibility into the cluster's behavior and operations, management is more like guesswork.

Terracotta last month made generally available its updated version of its namesake open-source Java clustering tools. Terracotta 2.6 includes overhauled cluster visualization and is officially supported with Tomcat 6.0. The company also claims performance is 30% to 300% faster than previous releases.

The release offers new cluster monitoring and management tools that allow developers and operators visibility into a range of performance metrics. ■



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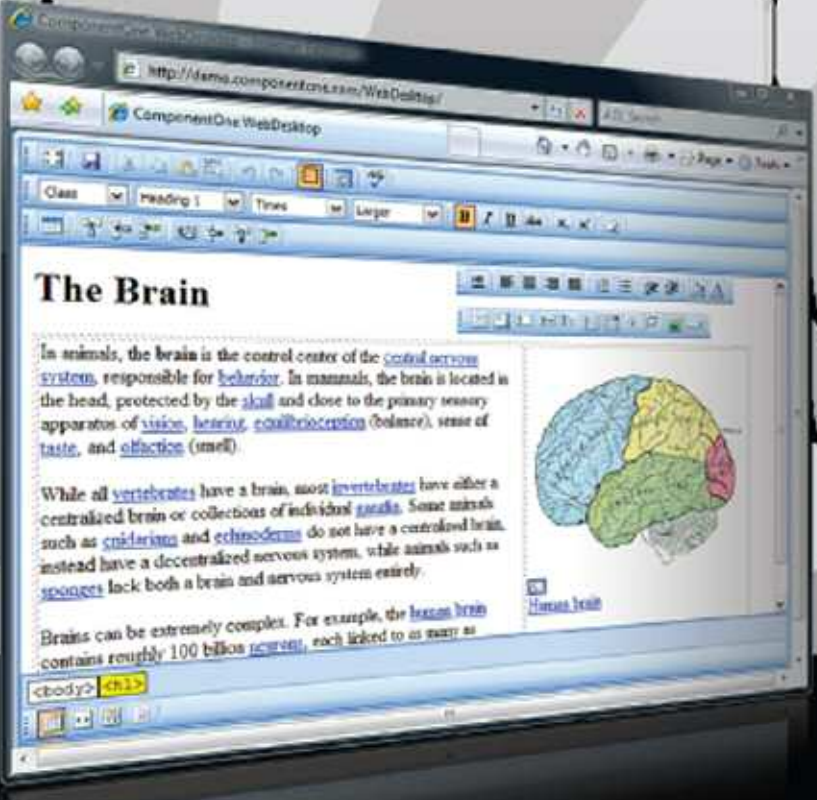
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SOA infrastructure software eyes big iron

Eases complexity of development workflow

BY DAVID WORTHINGTON

Mainframes are alive and kicking, handling millions of mission-critical transactions daily. Their longevity is testament to a role that transcends number crunching, and to that end, a software maker has created SOA infrastructure software that runs on big iron.

Late last month, SOA Software shipped SOLA 6.0, which provides native governance, the SOAP stack, workflow management and a UDDI registry, and works with Serena Software's ChangeMan ZMF change management solution. SOLA (Service Oriented Legacy Architecture) exposes mainframe

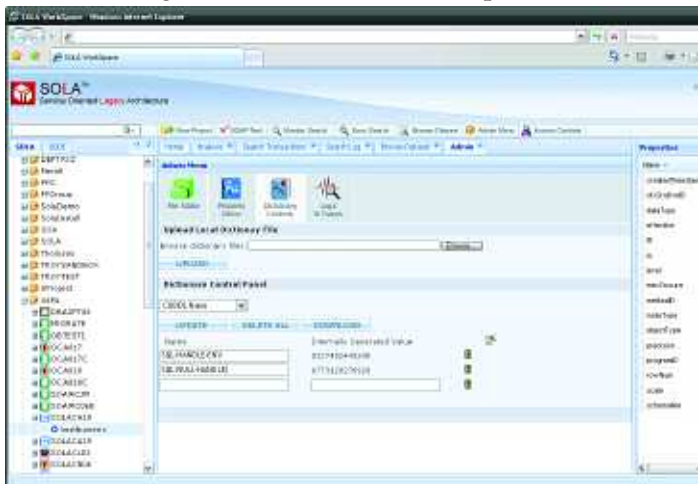
applications as Web services and allows mainframe apps to consume Web services.

SOLA 6 introduces BPEL (Business Process Execution Language)-based service orchestration, refreshed development tools, CICS TS 3.1/3.2 support and updated authentication.

Jim Crew, SOLA co-creator and SOA Software vice president, said that by executing BPEL on the mainframe itself, SOLA enhances the efficiency of complex operations.

To ease the complexity of development workflows, the development environment has been overhauled with an interface that has AJAX-powered drag-and-drop capabilities.

Security has been reworked with SAML 2.0 authentication, eXtensible Access Control Markup Language authorization, Transport Layer Security support and identity mapping. ■



SOLA 6.0 provides Business Process Execution Language orchestration.

rPath supports Novell

Linkup allows virtual appliances to be built using rBuilder utility

BY ROBERT MULLINS

The computer as an appliance often is still the best fit for a job. But virtualization is changing the way appliance makers view their technology, and at least one provider sees value in providing a range of platforms.

rPath, which delivers virtual software appliances with just enough of an operating system to run them, will support the Novell SUSE Linux Enterprise Server, rPath said last month.

The technology partnership enables application providers to use rPath's rBuilder utility to create virtual appliances using the rPath Appliance Platform for virtual appliance life-cycle management and SUSE Linux. This is rPath's first partnership with Novell, a spokeswoman said.

Novell will provide SUSE Linux Enterprise, including source code and maintenance patches, to rPath, which will

include SUSE in the rPath Appliance Platform. Customers will receive support directly from rPath for the appliance, but Novell will provide backup support for complex, or "Level 3," issues.

The virtual appliance allows independent software vendors (ISVs) to offer a software application and related OS code that run together in a virtualized environment, leaving a smaller footprint on the server than if the entire OS had to be installed.

"Having multiple operating system deployment options gives ISVs and corporate customers more choice when creating and managing software appliances," IDC analyst Al Gillen said in a prepared statement.

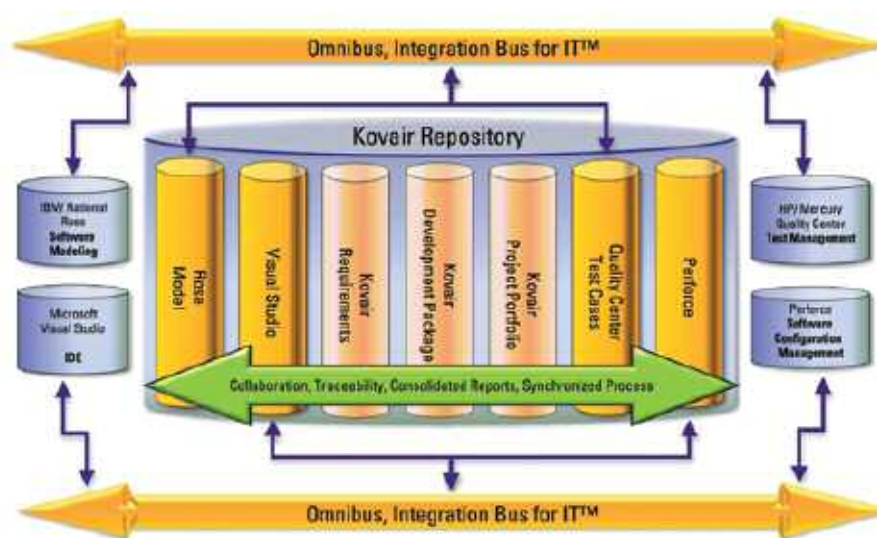
rPath already supports virtualization solutions from Microsoft, Virtual Iron, VMware and Xen, which was acquired by Citrix Systems in October 2007. ■

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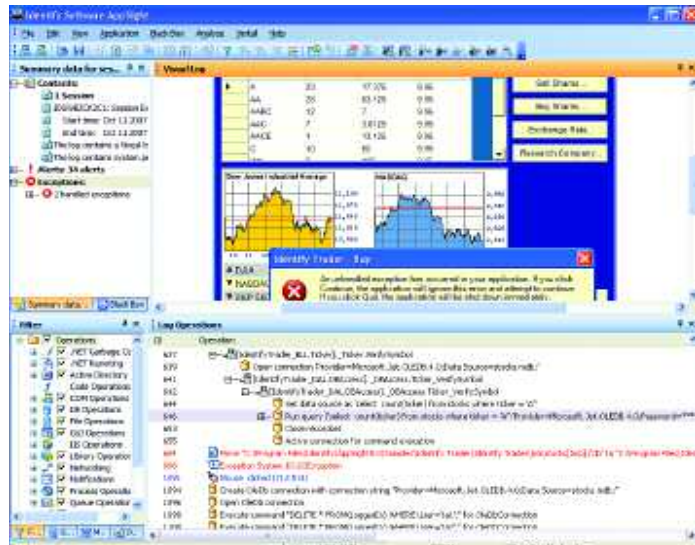
BY DAVID WORTHINGTON

A stew does not cook itself—especially when the ingredients are in separate pots. A defect analysis software maker has stirred its .NET and Java EE solutions together into an automated testing solution for heterogeneous applications.

BMC Software made BMC Application Problem Resolution 7.0 generally available last month. The release unifies the company's AppSight tools for Java EE and its Windows/.NET counterpart into a single product that has workflow automation.

Ran Gishri, director of global marketing at BMC, said that 40% of BMC's customers use mixed Java EE and Windows applications within their enterprise and that the trend is growing. Customers need to trace problem transactions across both platforms, he explained.

To that end, the company updated its Testing Workflow Automation Module to support Java EE servers as well as revise the user interface to make it easier to drill down into logs



BMC Application Problem Resolution 7.0 identifies an error's root cause.

and investigate issues than it was during the AppSight days.

Other improvements are platform-specific. Application Problem Resolution 7.0's role-based views for Java EE applications provide more finite control over its "black box" recording technology for testers and test managers, and event logs are saved with every report.

Application Problem Resolution supports the latest production versions of Microsoft platforms and technologies, including the .NET Framework 3.5, Internet Explorer 7 and Windows Vista, Gishri said. The level of data AppSight records for root cause determination has been increased by adding CLR-level (Common Language Runtime) functions, he added. ■

VISUAL SOFTWARE DEVELOPMENT COMES TO RUBY IN STEEL DEVELOPER

BY ROBERT MULLINS

SapphireSteel Software is adding visual development capabilities in an upgrade to the developer edition of its Ruby In Steel IDE.

Ruby In Steel Developer 1.2 adds what SapphireSteel calls the Visual Rails Workbench, which allows drag-and-drop application creation, the company said. The IDE also provides tools for full-page editing of complete Web pages, the ability to resize and move controls using a mouse or keyboard, and auto-backup of changes to templates.

Based on Microsoft's Visual Studio, Ruby In Steel is the first visual IDE for developers using Ruby on Rails, said Huw Collingbourne, co-founder of SapphireSteel.

Programmers may be content to work by writing code within Ruby on Rails templates, but the application also must look good, Collingbourne said. "None of that has ever been possible in Rails before."

Ruby In Steel Workbench

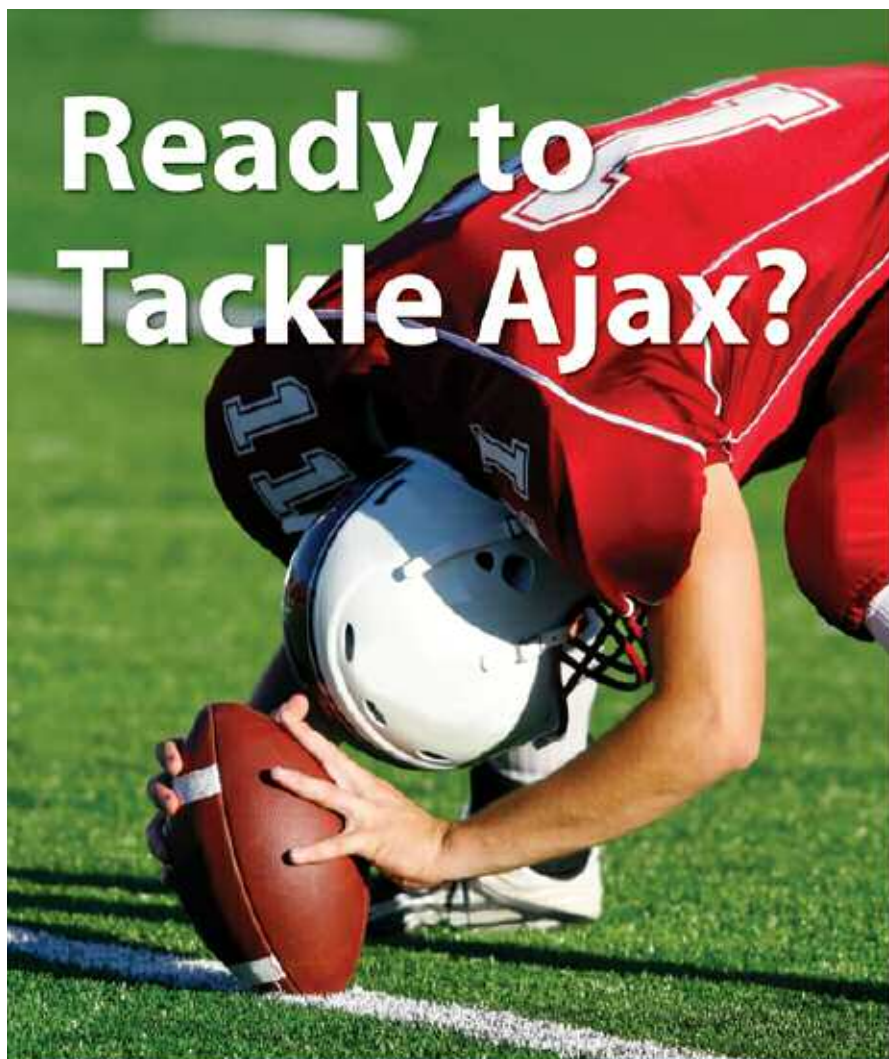
includes a "round trip" feature, Collingbourne said, allowing the programmer to toggle between the Rails editor and the HTML editor as he embeds Ruby code into the HTML code.

"We had to do at design time what Rails [only] does at run-time," Collingbourne said.

Ruby In Steel 1.2 also offers a new visual debugger for JRuby and a modified Cylon debugger for standard Ruby. It will also work with IronRuby, Microsoft's implementer for Ruby and Rails-based applications, which is still in the alpha stage of development.

The upgrade is free to users of previous 1.x versions of Ruby In Steel Developer. The list price for a new license is US\$199, with volume discounts available. SapphireSteel also offers a free 60-day preview.

Ruby In Steel Developer Edition version 1.2 lists for \$199 per license for up to four licenses, with discounts for volume purchases. An entry-level Text Edition lists for \$49 per license. ■



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NEWS BRIEFS

COMPANIES

Electric Cloud has integrated ElectricCommander and ElectricAccelerator with **Klocwork** Insight, joining the software build and release tools with the security company's source code analysis product. Company executives said the integration would make running builds and static analysis tests easier before code is implemented ... **FiveRuns**,



which creates application monitoring and systems management products for Ruby on Rails, and **Ayoka**, an enterprise software development services company, have created custom Ruby on Rails applications with performance monitoring from both providers. Ayoka makes products for mid-sized companies and does development on the Ruby on Rails framework. FiveRuns provides products that monitor Rails applications.

NEW PRODUCTS

Google has created a **developer sandbox** for its iGoogle Web service, providing resources to build iGoogle Gadget applications. The sandbox will be able to work with Google OpenSocial APIs. It also has what the company calls a "canvas view" option for gadgets, as well as social features with a "friends list" and a list of activities displayed on a special updates gadget ... **Kentico**, which makes Web content management products, and Web hosting provider **Applied Innovations** have struck an arrangement to host .NET user groups. Users are given a free license of Kentico's CMS Enterprise Edition and a **Web site template** that lets them share information with group members. A sample site can be found at www.kenticolab.com/dotnetgroup.

UPDATES

AJAX specialist **Backbase** has released version 4.2 of its **Enterprise AJAX** framework, allowing developers to choose between rich and lightweight AJAX functionality. The company said it also offers CSS, JavaScript and XPath, along with native or third-party widgets in the building of rich Internet applications ... **Mobile application provider Action Engine** has released version 5.0 of its **Open Mobile Software Development Kit**, which developers use to build mobile applications with .NET and XHTML. The SDK now lets developers work simultaneously with Java, RIM and Windows Mobile devices from the same user code and simplifies testing requirements, according to the company ... **Application life-cycle management provider Newmerix** has released new versions of **Automate!Control** and **Automate!Change**, which offer document



management and improved data reporting. The products include new security features for PeopleSoft and Oracle E-Business Suite customers and can integrate with Microsoft Office SharePoint Server 2007 ... **WaveMaker**, which focuses on AJAX development, has released version 3.2 of its **Visual AJAX Studio**. It has a beta installer for Mac OS X systems and works with the Safari browser. Visual AJAX Studio allows developers to create Java Web applications without having to write a great deal of code, and its open-source toolkit has a drag-and-drop style, according to the company ... **Mitronics** has released a free, downloadable SDK for its software acceleration platform and virtual processor. The **Mittrion SDK Personal Edition** focuses on parallel programming and includes the Mittrion-C compiler and a graphical debugger for creating Mittrion-C applications on the company's virtual processor.

PEOPLE

Emma McGrattan, senior vice president of engineering at open-source database management software company Ingres, has been named to the Eclipse Foundation's board of directors. Additionally, **Deb Woods**, Ingres' vice president of product management, has been named to the board of directors for the Open Solutions Alliance. The Open Solutions Alliance is a 10-member organization launched in 2007 dedicated to interoperability between applications and advocacy for open solutions. Some of the members include Black Duck, Hyperic, Iona, JasperSoft and Palamida. ■

New spin on data integration

SnapLogic taps multiple sources to build an app

BY ROBERT MULLINS

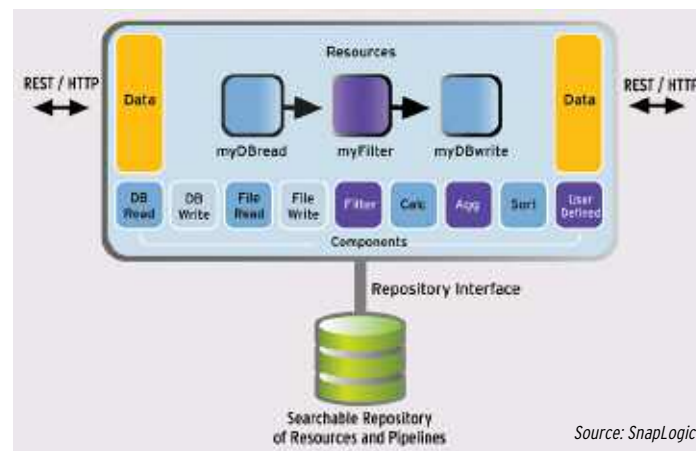
Trying to integrate data from multiple sources into a Web-delivered application is complicated, prompting developers to look for ways to simplify the process. SnapLogic is touting a new approach it believes will help tackle this problem.

SnapLogic is promoting a concept called "Real Simple Integration"—a play on RSS, or Real Simple Syndication—in a 2.0 upgrade of its data integration framework, including its first commercial product and support subscription options, that launched last month.

SnapLogic's framework pulls data from SaaS applications, SOA Web services and other databases to create enterprise mashups and rich Internet applications for business use, said Chris Marino, SnapLogic's CEO.

Businesses have wanted to repurpose data for a Web page, but found the extract, transform and reload process onerous, Marino said. "People would devote very precious time and effort to building hand-coded, point-to-point program integration."

SnapLogic leverages the representational state transfer architecture style to transform data for the Web, Marino explained. With it, knowledge workers can



Source: SnapLogic

The SnapLogic Server retrieves data from a repository (bottom) and performs different functions (components) to sort data for Web presentation.

use such familiar tools as Google Search, Microsoft Excel and various Web browsers to find, transform and post that data.

SnapLogic is being used by KQED, a National Public Radio and Public Broadcasting System affiliate in San Francisco. KQED has had difficulty delivering the programs it has broadcast on TV and radio to its online audience, said Tim Olson, executive director of KQED Interactive, the stations' online branch.

"We have a whole database [of] video or audio files, and getting that from the database system and onto a public-facing site is a challenge," Olson said.

KQED-FM is using SnapLogic to take radio programs

stored in their database and convert them into MP3 files, then deliver them as podcasts online, he explained. For now, KQED is using SnapLogic only to repurpose radio shows, not TV.

SnapLogic offers an open-source version, SnapLogic Community Edition 2.0, which is licensed under the GPLv2. SnapLogic Professional Edition 2.0, the commercial version, comes with two subscription options: The Developer Subscription includes six licenses, technical support and training for three developers for US\$9,000 per year; an Enterprise Subscription includes 25 licenses and support starting at \$25,000 per year. ■

TECH-ED FOR DEVELOPERS, IT

BY DAVID WORTHINGTON

Starting June 3, more than 15,000 Microsoft aficionados will converge on Orlando, Fla., for this year's Tech-Ed conference, which has been split up into two tracks: one for developers and one for IT professionals.

Tech-Ed 2008's Developers' curriculum consists of 16 technical tracks with more than 615 breakout sessions, in addition to

hands-on labs and other events. Pre-conference seminars are being held on June 2, while the conference itself runs from June 3 to 6. Microsoft anticipates that 5,000 developers will attend the show. Outgoing chairman Bill Gates will be delivering his final Tech-Ed address as chairman of Microsoft.

The generalized IT Professionals portion of the conference runs from June 10 to 13. Microsoft forecasts that 10,000 IT professionals will attend. Both conferences will be held at the Orange County Convention Center in Orlando, Fla.

Discounted travel and early registration rates are available through the Tech-Ed Web site, and full descriptions of the conferences' agendas are published online. The information in this article is derived from the conferences' Web site. ■



Gates will deliver his final Tech-Ed address as Microsoft chairman.

TECH-ED 2008

CONFERENCE

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Tuesday, 10 a.m. - 6 p.m.
Wednesday, 7 a.m. - 9 p.m.
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BREAKOUT SESSIONS

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KEYNOTE

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www.microsoft.com/events/teched2008

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Clouds bring mix of promise, uncertainty

◀ continued from page 1
utility in the early 20th century, as opposed to having people operate their own generators: It's cheaper and less complicated and allows a company to concentrate on its core business.

"With cloud computing, you have the freedom not to have to run a data center, because you just pay as you go," said Essy Nickolova, a marketing vice president at 3Tera, which exhibited its Cloudware architecture at the Web 2.0 Expo, under the banner "Cloud Computing Without Compromise."

Although not a cloud provider like Amazon, Cloudware is based on 3Tera's AppLogic grid computing operating system. Four of the main cloud providers identified in a March Forrester Research report use 3Tera architecture to set up applications to run in the cloud (see chart, page 16).

Other cloud providers first help clients build a software application and then run it for them in the cloud.

BUNGEE JUMPS IN

Bungee Labs introduced its Bungee Connect development platform at the Web 2.0 Expo along with its hosting service

(see story, page 8). Applications can be hosted in one of two Bungee data centers or on Amazon's EC2 service, access to which Bungee resells. Moreover, clients can host Bungee-developed applications in their own data centers if they're not yet ready to reach for the clouds.

Although the merits of cloud computing are widely understood, reservations remain. In the March Forrester report, "Is Cloud Computing Ready for the Enterprise?" analyst James Staten raised several caveats:

First, service-level agreements from cloud computing providers "are mostly nonexistent," he wrote, so enterprises lack the assurance that computing capacity will be there when they need it. But startups seeking to outsource their computing don't share that concern.

What's more, though major players such as Akami, Amazon and Salesforce.com are entering cloud computing, more major vendors must come forward for enterprises to gain confidence in the market. Yet, Google is venturing in with its App Engine, and Microsoft's Mesh for the consumer is regarded as a cloud computing play.

Finally, few enterprise references exist from cloud providers to give prospective users confidence in the service, Staten noted.

Until cloud computing becomes more widely available and accepted, Staten added, enterprises are taking baby steps with cloud R&D projects, non-critical business applications or Web-based collaboration services.

Burton Group's Creese agrees that the evolution has not reached the tipping point, when adoption would accelerate quickly. He asked, "How does an enterprise perform quality assurance or maintain documentation for an application someone else hosts? How does a company switch from one cloud computing provider to another? What happens to their data stored with the previous provider?"

Those questions need to be addressed, but Creese believes the answer to the more fundamental question should drive all other decisions—the one businesspeople posed a century ago—"Why are we devoting all this time, money, effort and people to create electricity for us when we could just plug into this grid?" ■



'Many people are stuck in the thinking that SOA is a component pattern and that services can be reused like Legos.'

—Miko Matsumura, Software AG deputy CTO

How big is SOA? It's time to rethink things, says Software AG CTO Miko Matsumura

BY DAVID WORTHINGTON

Software AG deputy CTO Miko Matsumura cultivated a keen understanding of evolution as a student studying neuroscience at Yale University. Fast-forward to the present, and Matsumura is applying that discipline to service-oriented architecture—a pattern that he believes is redefining itself before our eyes.

In a recent interview with SD Times, Matsumura said that the concept of SOA should be broadened to include business process and human patterns. He argued that SOA has become "Big SOA," an alphabet soup of acronyms that resembles a mathematical formula: SOA + POA (process-oriented architecture) + WOA (Web-oriented architecture) = SOA.

That's SOA, as defined in the traditional sense of services being created for reuse in the component pattern; POA, which pertains to business process management and BPEL service orchestration being the process pattern; and WOA as the human pattern. Throw into the mix cloud services, social networks and other "Web 2.0" services, too.

In Matsumura's view, WOA also encompasses complex event processing, event-driven architectures, exception management, publish-and-subscribe technologies and rule engines.

He acknowledged that his all-in-one notion of Big SOA might be stretching the definition. But he countered, "What is the crux of SOA? [It is] a service context. I'll argue that the way services are handled today is that services are more than just Legos; services are provided to make customers happy."

Matsumura argued that it does not matter whether the customer is made happy through BPM or EDA, since all of it is service-oriented. SOA "swallows"

the concept of event-oriented architecture, and Web-oriented architectures are "part and parcel," of SOA, he said. Matsumura added that SOA is "big enough" to deal with something as "messy" as the Web and events.

"Many people are stuck in the thinking that SOA is a component pattern and that services can be reused like Legos," he explained, adding that SOA at its core is about business and IT alignment and that it transcends the building block construct.

"Everyone is scratching their heads about the difference between cloud [computing] and SOA. That's almost like asking 'What's the difference between Web 2.0 and 1.0?'" he quipped.

No longer siloed as an arcane IT discipline, SOA is becoming ubiquitous, he noted. It may not be a traditional CEP use case, but social networking Web site Facebook fits Matsumura's vision of Big SOA. Metadata amplifies Facebook events across the social graph, he explained.

"The [Facebook] cloud is not service-oriented in the traditional sense; it is more event-oriented. Services have to bind to events and people and interactions," he explained, citing it as an example of how humans are event-oriented and how IT can be tailored to better suit their needs.

As an aside, he credits the emergence of massive in-memory caching for providing the transactional capability that is driving event-driven architectures on the Web, calling it the "GigaNOW" effect.

Facebook, he said, uses gigabyte-sized RAM caches to process its event stream, and the difference between nanoseconds and milliseconds—between in-memory and disk caching—is significant. ■

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FortressITX	DynamicGrid	3Tera AppLogic-based cloud utility computing platform
Joyent	Accelerator for Applications	Cloud computing platform built on OpenSolaris and JoyentAccelerators (virtual servers)
Layered Technologies	GridLayer	3Tera AppLogic-based cloud utility computing platform
Rackspace	Mosso	Cloud offering focused on hosting dynamic Web sites
Salesforce.com	Force.com	Extendable cloud platform for Web-based applications
Terremark	Infinistructure	Cloud offering housed within Terremark co-location facilities
XCalibre	FlexiScale	Virtual Iron-based cloud infrastructure with embedded clusterload balancing and HA services

Black Duck acquires assets of Koders

◀ continued from page 1

ent sections of code, said Douglas Levin, president and CEO of Black Duck.

"Koders has an excellent reputation with the open-source community," said Levin. "We are adding a very significant asset to our already established business ... and capabilities that are highly complementary."

Koders.com will remain a free site that developers can access for code searches without using Black Duck's other services, Levin noted. Koders.com complements the Black Duck KnowledgeBase, a database of open-source and third-party code, which contains more than 520 million code files, he said.

In addition, Black Duck gets Koders' Pro Edition and Enterprise Edition development tools for searching code and integrating it into the application development workflow in Microsoft Visual Studio, Eclipse or other IDEs.

For Koders, the deal makes its search engine part of a larger software development community, said Darren Rush, the company's founder and CEO.

"We spent time building a really strong search engine architecture for the software development process. We have been looking toward building a really strong community presence, and I think we have accomplished both of those points" with the Black Duck deal, Rush said.

CODE SEARCH MATURING

The Black Duck news was posted on a blog on the site of Krugle, another code search engine. The posting, titled "Code Search is Growing Up," drew a comparison to the launch of the original search engine, Google, during the late 1990s.

Before Google, "no one had any idea that search was needed, they had no idea of the problems that search would solve, and they had no idea how much value Google could extract by providing search to the Internet," Steve Larsen, CEO of Krugle, told SD Times in an interview.

By the same measure, Black Duck and Koders address the legal complexities of code management in a new way, Larsen said.

However, Krugle and Koders are different code search engines, he added. While Koders is compliance-focused,

Krugle is developer-focused in that it addresses application life-cycle management more so than compliance. Those issues include development, debugging, deployment and maintenance.

Krugle also powers the code search on various other development sites, including Sourceforge.net and the IBM developerWorks site.

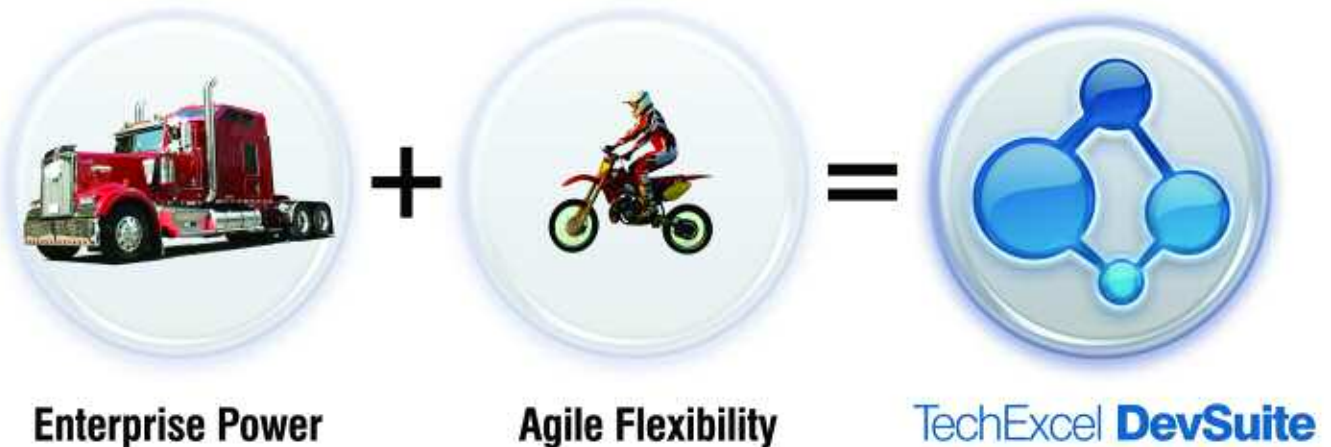
Though public sites such as

the Google Code Search beta are drawing traffic, some enterprises developing proprietary software don't want code accessible on the Internet, Larsen added.

Terms of the deal, which took

effect April 28, were not disclosed by the two privately held companies. But other such deals could follow, as Black Duck builds its life-cycle management capabilities, said Levin.

"We are interested in acquiring other companies going forward. It may not be in the code search [market]," he said. ■



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Microsoft lifts lid on Oslo prototype for managing

◀ continued from page 1
names being provisional.

The company does not expect to ship any deliverables until at least 2009, but customers may use the Configuration Service in

production systems under the same support policy that covers the patterns and practices provided by Microsoft's Platform Architecture Guidance group, said Burley Kawasaki, director of

product management in the company's Connected Systems Division.

Kawasaki said that Microsoft would preview more "blocks, pegs and other usable things"

from Oslo to gather feedback from developers. Configuration Service 2.0 is an Oslo prototype for aligning metadata repositories and will feed into the above technologies, said Kawasaki.

"Configuration Service 2.0 shows that Microsoft is thinking hard about this infrastructure and recognizes that WCF is incomplete without it," said Andrew Brust, a regional director volunteer for Microsoft's Developer Platform evangelism group and chief of new technology at twenty-six New York, a Manhattan-based consultancy.

"The Config [sic] Service looks to be quite rich," he added. Brust speculated that the Configuration Service could strongly influence how the releases tied to Oslo would provide dynamic load balancing. This would be done through a common configuration database, despite its origins in the StockTrader.NET effort, which he called a "sort-of skunk works project."

Gregory Leake, the director of technical marketing in the Microsoft Connected Systems Division, said that Configuration Service 2.0 is a container-like service that runs in the Common Language Runtime process to virtualize WCF ServiceHosts.

Configuration Service operates much like the Internet's Domain Name System, he said. It manages all active service endpoints, which it assigns dynamically, and directs its requests to the fastest available nodes.

The WCF ServiceHosts run on multiple nodes to keep operations in sync, and Configuration Service updates live nodes in memory. There is no master repository or architecture for configuration; rather, a service configuration database that has linkages to share across domains is kept on each service domain, said Kawasaki.

A Web-based user interface called ConfigWeb UI provides a central view for monitoring deployed applications and managing hosts that implement the service, but does not manage metadata and cannot log into nodes that do not implement the service, according to Leake.

Configuration Service also provides load-balancing capabilities, Leake explained in a follow-up e-mail. So-called "primary" service endpoints are virtualized in a way that allows clients to direct traffic to a base class that balances requests across running nodes. "This is tied into a notification system that flows through Config [sic] Service Endpoints, such that new nodes join the

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cluster automatically, and start receiving load and participate in failover," he added.

Leake noted that Configuration Service is not restricted to WCF and works with non-

.NET services, too. The service lets developers create Connected Service definitions to non-WCF services, and it manages these endpoints in service configuration databases by

"showing connections to WebSphere services or other Java-container services, managing connections and load balancing requests, and showing on-line/offline status of these non-.NET services, or service endpoints," he wrote.

On the other hand, externally exposed services running within

a host that implements Configuration Service are fully accessible to non-.NET and non-Configuration Service clients and can be used by Java clients, he noted.

Brust thinks that, with more engineering, the Configuration Service could be used to mash up otherwise siloed departmental services into composite appli-

cations. The unified way that Configuration Service manages the work offers a "nice balance" of loose coupling and integrated management, he added.

"If SOA is to avoid being tomorrow's abandoned acronym, this kind of engineering must be nurtured, supported and continually improving," said Brust. ■

THE STANFORD PLAY: PARALLEL COMPUTING PUSH

BY ROBERT MULLINS

Stanford University, with support from major technology companies, is creating a lab to advance parallel computing—the development of software programs that can maximize the performance benefits of multi-core processors.

Stanford is expected this month to announce formation of the Pervasive Parallelism Lab. The lab, with a US\$6 million budget over three years, will research and develop a comprehensive parallel computing system, including development of easy-to-use programming languages.

Multicore processors make it possible for different sets of instructions, or threads, to move through the processor simultaneously. But software historically has been written to execute instructions one at a time, so the benefits of multicore processing have been limited. Recently, the gap between processor performance and software design has grown, as more multicore processors are built into PCs, servers and embedded devices.

Backing up Stanford's efforts are technology companies that can bring the promise of parallel computing to market: AMD, Hewlett-Packard, IBM, Intel, Nvidia and Sun Microsystems. Other companies are welcome to join the lab, and none has exclusive intellectual property rights, said Kunle Olukotun, the lab's director.

Stanford is just the latest university to step up its parallel computing research. In March, the University of California, Berkeley, and the University of Illinois at Urbana-Champaign said they would share \$20 million from Intel and Microsoft to fund Universal Parallel Computing Research Centers, one at each campus, over five years. ■

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With multiple platforms, where should Nokia

◀ continued from page 1

platform road map they should follow, an industry expert said. Among the products in play are software development kits and tools unveiled at last month's Forum Nokia exhibit Web 2.0

Expo in San Francisco.

Back in January, Nokia made a US\$150 million offer to acquire Trolltech, best known for its Qt cross-platform development framework, including the Qtopia mobile platform

code library. Nokia followed up in March by announcing support for Microsoft's Silverlight, a cross-platform browser plug-in for Web applications.

Despite Nokia's nurturing of the Forum Nokia developer

community and the Trolltech deal, developers face a confusing array of choices, said Michael Mace, a principal at Rubicon Consulting.

Until Nokia decides and declares, "Here's our one plat-

form that everyone should be developing for," then developers are still going to have this problem of not knowing which they should be supporting," said Mace. "It's really hard for a developer to know where they should be putting their energy."

The company's S40 platform is the basis for low-end feature phones, while the S60 is the entry-level smart phone platform. Nokia phones, except for the S40 lines, run on the Symbian operating system, a minor presence in the U.S. market, though widely known globally.

To be sure, he acknowledged, Nokia could tell developers to write in any language or framework, and a middleware layer could enable the application to run. But developers need guidance for that to work properly, he added.

Still, the company's commitment to building rich mobile applications is clear. In January, Nokia combined three device business groups into one, Devices and Services, and then created a business unit, Services and Software, to build Internet applications and services to run on its phones.

In addition, Nokia's Mobilize and Share (MOSH) marketplace for building and deploying mobile applications is expected to go live in June. Since the beta release of MOSH in the summer of 2007, 484,300 widgets have been downloaded from the site; 3,900 software development kit downloads were recorded in March alone, he added.

COME TALK TO US

"That is a great indicator for us that we are getting uptake in this space," said Eric John, Forum Nokia program director. "The message to developers is, 'Come talk to us.'"

One company already has done so. Plusmo, a mobile widget service provider, has compiled a library of 20,000 widgets and offers a wizard for anybody to publish his own. One advantage to working with Nokia is that the widget runtime environment that Plusmo uses is embedded into the latest version of the S60 platform, said Plusmo CTO Srinivas Mandyam.

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developers go?

installing a software client application to run it.

Instead, with a Nokia Symbian device, "the widget gets installed directly onto the phone menu. It's more convenient," Mandyam said.

But when John was asked whether Qt would become the main platform for creating applications for Nokia phones, he said, "We really can't talk about a strategy for something that hasn't happened yet. We're still investigating how it's going to work."

'BRIDGE THE USER GAP'

Company officials have to be guarded about discussing plans until the Trolltech acquisition closes before the end of the second quarter. But Lenn Pryor, Nokia's vice president of services and software, was somewhat more expansive: "We want to bridge the user experience gap between the PC and the mobile device and the Web. The Qtopia cross-platform library is a very interesting piece of technology" that Nokia hopes will make it easier

to "port a user experience across multiple platforms."

Sometime-rival, sometime-partner Sony Ericsson is also supporting a mobile application developer community, announcing in February a collaboration with handset makers, including Nokia, and wireless carriers in Europe to develop interoperable rich communications services.

On March 25, Sony Ericsson consolidated developer wikis and an online forum into one Sony Ericsson Developer World Community, where visitors can share code samples and development advice.

Even as handset makers grapple with how to grow rich mobile Web applications, Nokia's developer community would be advised to stick with the company, said Julie Ask, vice president and research director at JupiterResearch. Nokia, for instance, may be just one of many handset makers, but its global market share exceeds 50%.



Nokia 6110 Navigator employs Symbian OS with S60 platform.

"If you're Nokia, one of the things you offer is that 'We can guarantee your app will work on all of our phones,'" Ask said. "They can make this commitment to developers that if they develop the app, it's going to work on a lot of devices." ■

Microsoft gives Windows Embedded new monikers

Products renamed for consistency

BY DAVID WORTHINGTON

Microsoft is giving its Windows Embedded business a fresh coat of paint ahead of its next big wave of products.

At the Embedded Systems Conference in San Jose last month, the company announced its product road map and articulated a new product naming convention without going into any functional details about the upcoming releases.

The new Windows Embedded product names are:

- Windows Embedded Standard, the next generation of Windows XP Embedded, expected to launch June 3.
- Windows Embedded Compact, the next generation of Windows Embedded CE, expected to ship in 2009.
- Windows Embedded POS-Ready, the next generation of Windows Embedded for Point of Service, also scheduled for release in 2009.

Windows Embedded Enterprise, a new product that will be a Windows API-compatible operating system intended to inherit the characteristics of Vista and XP. It is expected to gain a broader set of embedded enabling features over time.

In addition, the company announced a certification program for Windows Embedded CE 6.0 that establishes a baseline for developer skills and technical knowledge.

Microsoft is trying to clear up confusion surrounding its embedded platforms by adopting a more consistent naming scheme, said Rob Enderle, president and principal analyst of the Enderle Group.

Microsoft's rebranding "more easily conveys the value associated with the products that have been renamed. It is easier to drop them into buckets that buying audiences find acceptable," he said. ■

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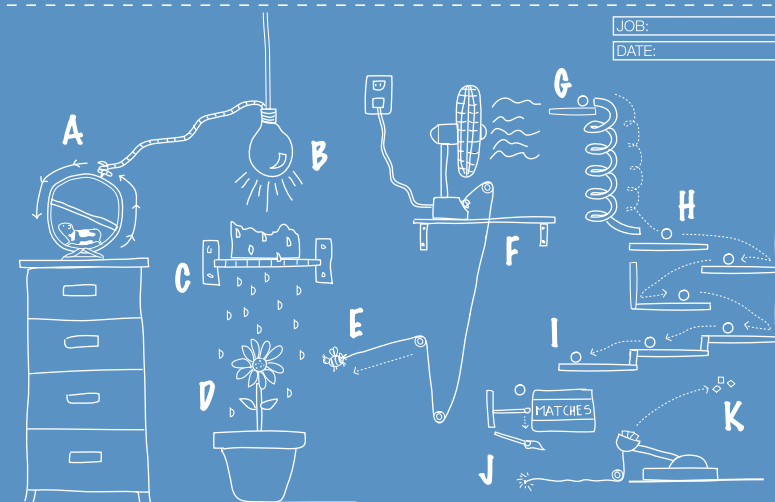
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Forget server consolidation; virtualization has the buzz and new benefits for development and QA teams



BY ANDREW BINSTOCK

Virtualization is taking the IT world by storm. The ability to unchain an operating system and application stack from the underlying hardware platform provides such compelling benefits that some sites are shifting entirely to virtualized infrastructure. Others are moving over non-critical systems—frequently as a pilot project in anticipation of virtualizing more-important systems. While the heavy buzz about virtualization began within the past 18 months, developers quietly have been using the technology—essentially in its third generation—for years. In fact, software development was the initial killer app for virtualization.

For a long time, development organizations were the primary target of VMware. During those years, the siren song that wooed developers was the ability to build and test software for a different platform without changing desktops. So, if you were coding C in Microsoft Visual

Studio, for example, you could open a virtual machine running Linux, build your code with gcc and run it right away to ensure it compiled and ran correctly—without ever leaving your primary PC. Likewise, you could back-test applications on earlier versions of Windows as well as on MS-DOS. In short, virtualization made it simpler to validate cross-platform code, with the sole proviso being that the operating systems were all x86-based. (This is a limitation that still characterizes virtualization today: Operating systems in VMs must run on the same chip architecture as the host. Technically, any other combination uses an emulator.)

Today, at sites that have embraced virtualization, software development leverages the technology for far more than simple cross-platform validation. Indeed, leading-edge sites are employing virtualization for development and testing.

The virtualization product to which developers flocked, and made famous, was VMware Workstation. During the years since its launch in 1999, VMware Workstation has steadily improved and added easy-to-program features, some of which will be enhanced in the upcoming version 6.5.

The most important of those features is the ability to take snapshots. At any point while running VMware Workstation, you can capture the entire state of the VM and save it in a file for reuse. There are two types: a linked snapshot, which contains the deltas from a known profile, or a full clone, in which the entire VM and its disk are copied. The latter often can consume multiple gigabytes, while the linked snapshot is much smaller. However, to run the linked snapshot later, the base profile must be available at runtime.

The ability to capture a **continued on page 26 ►**

The new virtualization

◀ continued from page 25

VM at a specific moment means that when a defect appears, either the tester or the developer can snapshot the VM and save it for later diagnosis. Sites that use that approach frequently enter the description into the defect-tracking system with a link to the VM snapshot, so that the developer assigned to the defect can have all the available information. In that way, the number of irreproducible bugs and those that depend on a specific system configuration are greatly reduced.

Sometimes, though, you also need to capture the events leading up to the defect's appearance. VMware Workstation lets you record all events in the VM to a data file and then replay the file in the VM. An engineer can go back and forth in time repeating the steps as often as necessary. However, the feature works slowly and generates huge data files. The upcoming VMware Workstation 6.5 promises to optimize this capture process.

SANCTIONED PLATFORM PROFILES

Cloning is valuable for developers not only for capturing defects but also for starting from a known-good configuration. Some IT sites publish officially approved configurations for all corporate

CAVEATS DICTATE YOU TEST FIRST

Tempting as it might be to virtualize everything, some requirements don't work well with virtualization. Know them beforehand. Take high-end graphics. Microsoft Vista Aero Glass has a hard time running on most VMs, because its graphical requirements exceed those available in most VMs. And you can't install video drivers into the VM to remedy that, because the graphics hardware is emulated. So, if your app does fancy graphics, virtualization is not for you.

Second is high network bandwidth. Again the network adapter is virtual, so no tweaking can be done. As seen in the figure, you can add virtual adapters, but you can't make them faster than they are. Nor can their aggregate throughput exceed the bandwidth of your underlying system. And if other VMs are running on the same host machine, your bandwidth is commensurately lower.

This is very much the case as well for disk I/O, USB I/O and any related I/O. It will generally slightly underperform native hardware, and you won't be able to improve performance by swapping in a component.

In sum, for high-end video applications or systems in which I/O performance is critical, virtualization is not ideal. However, don't make a blind decision about virtualization's suitability. Test it first. —Andrew Binstock

VIRTUAL MACHINES FOR OUTSOURCING

Companies that outsource development, especially offshore, frequently face problems that virtualization can diminish. The first is provisioning special tools to their developers; another is security of their intellectual property. Some companies have solved both problems by hosting the development machines locally in a VM and having the developers dial in, generally using remote desktop protocol (RDP). Access to Web sites or other network locations from the VM is tightly controlled, as is access to the file system.

That arrangement provides an easy solution for provisioning expensive tools. Because the VM is hosted locally, there is no chance the tools will "walk away," causing licensing problems. Likewise,

desktops. Then they create a library of VMs that implements those profiles—one each for, say, accountants, lab technicians and manufacturing. By having those profile VMs available, developers can test their software on the same configuration on which the end users rely.

This profile integrity is important because developers don't typically work on systems that are like those of other users. Likewise, the machines on which they verify the code tend to drift from the standard during testing. Configuration tweaks ease installation or rapid testing, the registry (on Windows machines) is modified due to previous installations and configuration files are left on the system. Those changes can mask defects or create false positives. By pulling a clean copy of the deployment environment each time the code is tested, developers and QA teams can ensure a smooth deployment.

MULTI-VM CONFIGURATIONS

In many situations, profiles and snapshots involve more than one VM. For example, multi-tier applications often include a database server, an application server hosting the logic and a client-side system. Ideally, developers and testers would like to group those three so as to deploy, test and manage them as one entity.

Tools from VMware (VMware Lab Manager), Surgient (VQMS) and VMLogix (LabManager) allow sites to define a group of related machines and save them as a single unit, meaning as a single multi-VM configuration. Those vendors also offer an important component that enables these cloned configurations to be run at the same time as the original. This ability might appear like nothing special, but in fact it shows some magic.

When you save a VM, the saved bits include the MAC and IP addresses. Obviously, running a cloned configuration with the same MAC addresses as the original machines that are still running will cause a flurry of network problems. So, when the configuration is saved, a virtual router is bundled with it. The router performs network address translation so that the configuration retains the original IP and MAC addresses internally, while the rest of the network sees them mapped to oth-

er addresses. This benefit is important for servers and databases that use hard-wired IP addresses, as well as for licensing software that employs MAC addresses to identify individual machines.

With configurations fully operational, code testing can proceed on multiple machines, and cloned configurations can be saved for bug analysis the way single VMs are saved in VMware Workstation.

The ability to properly save multi-VM configurations gives developers and testers powerful new capabilities. First, these folks can create profiles of their enterprise runtime environments. Even if those servers are not virtualized, tools such as VMware's P2V (physical-to-virtual) can create a virtual machine from a physical host. Run P2V when the machine is being maintained (or over a weekend) and you can start creating accurate profiles of the data center. Taken together, those profiles can test software prior to deployment, confident that the ultimate environment will not contain unanticipated tweaks to make the software balk.

At large enterprises, this option also helps compliance with regulatory requirements, especially Sarbanes-Oxley. At the main stages in pre-deployment—performance evaluation, scalability measurement and user-acceptance testing—archives of the configuration can be saved as documentation of completed testing.

that setup makes it far more difficult to steal IP. Certainly, it's not impossible, but now any misappropriation requires more extended effort and would certainly be intentional, as opposed to inadvertently or impulsively violating access limitations.

The downside, of course, is the responsiveness of the system for the developer. RDP, especially over transnational WANs, is hardly as fast as local access, so productivity will be somewhat diminished. This solution works best for situations in which some specific change has to be made to sensitive code, rather than as the default environment for green field development.

—Andrew Binstock

Likewise, if a defect appears in the ultimate deployment to production, the archives can serve a diagnostic purpose: Was the bug always there? If so, why wasn't it discovered during final testing?

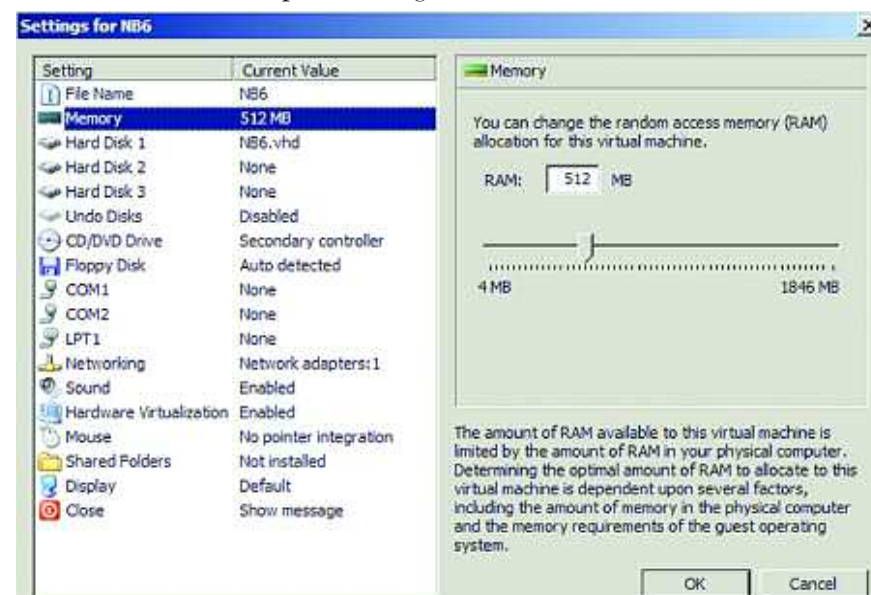
SCALABILITY TESTING

One of the great challenges of testing software without virtualization is identifying how an application would work when asked to scale significantly or to operate in resource-constrained environments. Even though the IT department might ask developers to code to certain user platform profiles, when a given program runs, the machine might have far less memory or bandwidth than the profile specifies.

One convenient way to test constrained behavior is to use a VM and lower its RAM until it fails. On most VMs, adjusting runtime RAM is simple. The figure below shows a dialog for reducing available memory on a VM in Microsoft VirtualPC 2007. This dialog also enables four network adapters and permits specification of display resolution—key features in testing performance and capacity.

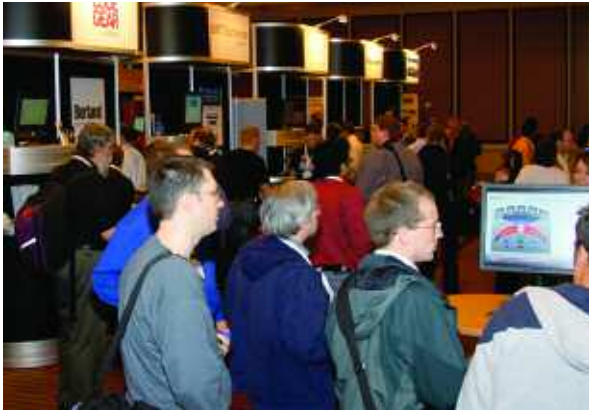
If you can use virtualization in your development and test environments, the benefits are truly significant. ■

Virtualization expert Andrew Binstock is the IntegrationWatch columnist for SD Times.



The hardware features of VMs are easily adjusted for scalability testing, as in VirtualPC 2007.

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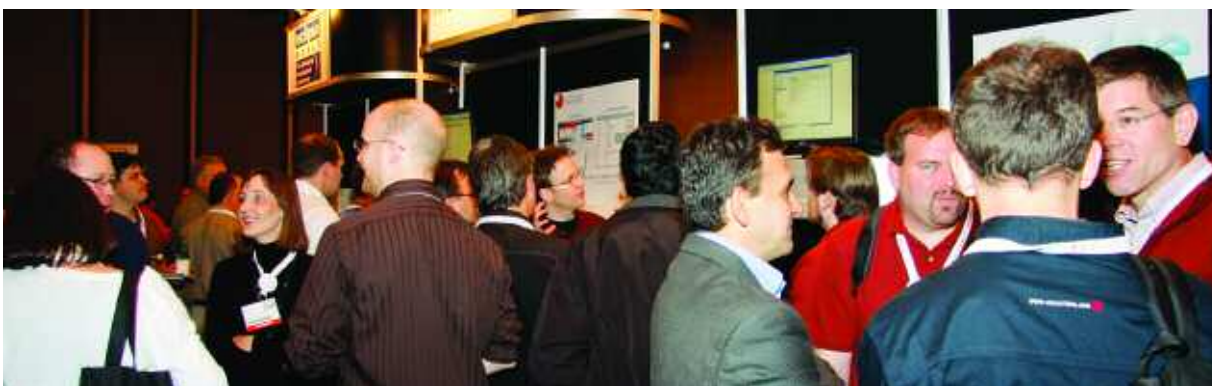
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FROM THE EDITORS

Democratizing SOA

Grandiose initiatives and Microsoft rarely mesh. The resulting products often ship late and underwhelm—or they never progress far beyond the whiteboard. “Oslo” may prove the exception, because SOA software makers have successfully integrated services and modeling.

More important, Microsoft can do something that others have failed to do so far: Bring composite applications into the development mainstream.

If Microsoft meets its objectives—the Oslo wave of products arrives on schedule, delivering as promised—the “what-ifs” become compelling. An enterprise does not necessarily need deep pockets to buy the Microsoft software, and lowering the bar to SOA adoption would benefit customers.

Much of the SOA infrastructure software today targets large enterprises and verticals. The expensive solutions offered by the big players are robust and powerful. But not every customer needs that kind of power.

When it comes to the mid-tier, Microsoft understands the market quite well. Indeed, Redmond has succeeded, even though its products are not the most elegant, nor are they always the best. But Microsoft excels at removing barriers to adoption and, arguably, democratizes IT. A reasonably priced solution that a department can get to work quickly is better than one that costs too much or takes too long to implement.

Microsoft could be an 800-pound gorilla in the SOA room that would force existing players to stay a step ahead of it and differentiate to improve the state of the art. Essentially, it would force “innovate or die.”

Microsoft’s entrance into the market for SOA and model-driven development tools might even inspire open-source technology donations, contributing useful technology that would advance interoperability and provide for other low-cost, bootstrapped solutions.

That scenario is a big win for customers, especially resource-constrained enterprises that might be tightening the belt on their development budgets.

However, Microsoft first must pull itself up by its own bootstraps and finish its work. So far, the signs are encouraging. It is releasing Configuration Service 2.0 under its Prescriptive Architectural Guidance support policy, standing behind its work.

In so doing, a successful pattern emerges: Microsoft released early alphas of Silverlight and ASP.NET AJAX, engaging the development community and accepting its feedback. Both products shipped on time and pleased customers.

So, maybe Microsoft has learned its lesson about overarching initiatives, but the company’s track record on big initiatives is not encouraging. We are still waiting on WinFS.

Moving beyond ringtones, games

Handset makers are no longer content to let wireless carriers be the gatekeepers for what mobile applications can run on their phones on the carriers’ networks. As evidenced by the array of widgets and other mobile applications seen at last month’s Web 2.0 Expo in San Francisco, the development community is actively seeking the next killer mobile application. And it is a movement that is upending the conventional business model.

In the U.S. during the past decade or more, carriers chose which applications handset makers could offer on their phones, usually with the aim of getting the user to burn more minutes on their wireless plan. Now, with increasingly robust phone platforms, faster networks and a strong dose of entrepreneurship, the mobile application community is expanding.

Handset makers are nurturing developers and opening over-the-air marketplaces for users to download such applications as a GPS locator that finds a preferred restaurant close to where you’re walking, or a widget that plays the fight song of your favorite team to tell you when it has just scored.

The market will determine whether a subscription or advertising model works best for these new applications and how much they enhance the “stickiness” of a customer to their brand of phone.

That way, wireless carriers can concentrate on not dropping calls. Wouldn’t that be a pleasant change? ■

Getting the knack of OO coding

One of the areas in which I most see poor coding style is in object-oriented code written by developers, such as I, who were weaned on procedural code. Only by dint of many hundreds of rounds of refactoring has my Java code begun to look like native OO code, rather than an OO veneer over procedural code. I still have further to go to write those small, crisp methods as a natural expression of my thinking, but I am finally getting there.

This progress was realized by hard effort—an effort, I would add, that took far longer than I had expected. The time and struggle would have been greatly reduced had I earlier read an essay in a new book from the Pragmatic Programmers called “The ThoughtWorks Anthology.” The essay to which I am referring is “Object Calisthenics,” by Jeff Bay.

The essay amounts to a detailed exercise for perfecting the creation of small routines that demonstrate true OO design. If you have developers who need to improve their ability to write OO routines, I suggest that you acquire this essay. I will summarize Bay’s approach here.

He suggests writing a 1,000-line program with the constraints listed below. These constraints are intended to be excessively restrictive so as to force developers out of the procedural groove.

I guarantee that if you apply this technique, your code will move markedly toward object orientation. The restrictions (which should be mercilessly enforced in this exercise) are:

- 1. Use only one level of indentation per method.** If you need more than one level, you need to create a second method and call it from the first. This is one of the most important constraints in the exercise.
- 2. Do not use the “else” keyword.** Test for a condition with an if-statement and exit the routine if it’s not met. This prevents if-else chaining, and every routine does just one thing. You’re getting the idea.
- 3. Wrap all primitives and strings.** This directly addresses “primitive obsession.” If you want to use an integer, you first have to create a class (even an inner class) to identify its true role. So zip codes are an object, not an integer, for example. This makes for far clearer and more testable code.
- 4. Use only one dot per line.** This step prevents you from reaching deeply into other objects to get at fields or methods and thereby conceptually breaking encapsulation.
- 5. Do not abbreviate names.** This

constraint avoids the procedural verbosity that is created by certain forms of redundancy—if you have to type the full name of a method or variable, you’re likely to spend more time thinking about its name. And you’ll avoid having objects called Order with methods entitled shipOrder(). Instead, your code will have more calls such as Order.ship().

Integration Watch



6. Keep entities small. This means that no more than 50 lines per class and no more than 10 classes per package. The 50 lines per class constraint is crucial. Not only does it force concision and keep classes focused, but it also means that most classes can fit on a single screen in any editor/IDE.

7. Do not use any classes with more than two instance variables. This is perhaps the hardest constraint. Bay’s point is that with more than two instance variables, there is almost certainly a reason to subgroup some variables into a separate class.

8. Use first-class collections. Any class that contains a collection should contain no other member variables. The idea is an extension of primitive obsession. If you need a class that subsumes the collection, then write it that way.

9. Do not use setters, getters or properties. This is a radical approach to enforcing encapsulation. It also requires implementation of dependency injection approaches and adherence to the maxim, “Tell, don’t ask.”

HARD-NOSED ENCAPSULATION

Taken together, these rules impose a restrictive encapsulation on developers and force thinking along OO lines. I assert that those writing a 1,000-line project without violating these rules will rapidly become much better at OO. Then they can, if they wish, relax the restrictions somewhat.

However, as Bay points out, there’s no reason to do so. His team has just finished a 100,000-line project within these strictures. And I’ll bet it’s amazingly readable code.

What’s particularly interesting is that these rules are what’s missing. For example, there is no long-winded discussion about favoring interfaces over inheritance. Or how to refactor. Or any of the endless lists of standard topics. Just hard-nosed encapsulation. Teach that to the developers who need it, and many of your concerns about their coding style will disappear. ■

Andrew Binstock is the principal analyst at Pacific Data Works. Read his blog at binstock.blogspot.com

Multicore secures C++ future

Conventional wisdom often doesn't quite align with reality. For thousands of years, people thought that the earth was flat, heavier-than-air vehicles couldn't fly, and the Chicago Cubs would never win another World Series (ok, two out of three). With the continued popularity of the Java programming language, along with C# and the .NET framework, conventional wisdom suggests that C++ is a programming language headed for the sunset.

But the ubiquity of multicore hardware, along with other trends, is creating a great opportunity to leverage existing investments in C++ applications and enabling new development possibilities where C++ is the best tool for the job.

Many C++ applications have been rewritten in Java since that language was introduced in 1995. However, many millions—probably billions—of lines of C++ code are still running production applications in enterprises around the world, because C++ is still the best option for high-performance, low-latency applications, as well as those used in many embedded systems and mobile devices. C++ is also the language of choice for developing apps for massively parallel hardware, such as cell processors or graphical processing units.

As you undoubtedly know, major chip vendors essentially have halted the regular increase in CPU clock speeds that reigned for more than a half century in response to such issues as power consumption, heat output and unpredictability of quantum physics (to paraphrase Einstein, CPUs shouldn't play dice). Instead, chip companies are using multicore architectures to increase processing power instead of clock speeds. Though this is a logical move, single-threaded applications cannot take advantage of the processing power on those additional cores, and they often even run slower because of reduced clock speeds in multicore CPUs. That sets up the multicore dilemma, in which many applications don't automatically run faster on multicore servers and, in some cases, they actually run slower.

NO ONE'S EXEMPT

Although there are slight differences between programming languages and frameworks, in general, the multicore dilemma applies across the board: Java, C#, C++, etc. This is why Microsoft, Intel, AMD and other major players are investing in research intended to lead to the next generation of programming environments. The reality for any software application is that to benefit from multicore, the application either must be written to

be multithreaded or be in a container that can effectively make it multithreaded.

Now you may be saying to yourself, "If my choice is between rewriting my existing C++ applications to be multithreaded or having a container do the work for me, I'll obviously take Door No. 2."

Well, of course there is no plug-and-play solution, but development tools and containers exist that could help with the multicore dilemma for many use cases. In most situations, using these tools to optimize existing applications for multicore and other parallel hardware will be much less risky, time-consuming and costly than rewriting would be.

Now that concurrency has moved from being an edge case to a common requirement for enterprise software applications, enabling applications to run in parallel can't be limited to the most experienced programmers. One technique for making concurrency happen throughout your development group is to separate your concurrency model from the application logic, much like you have your data and user interface layer separate from the main business logic. Doing so allows feature developers to focus on the application functionality without worrying about explicitly threading at design time. In addition, it can be an effective technique for migrating existing single-threaded applications into multicore environments.

A COLLECTION OF SERVICES

The basic approach is to treat your application as a collection of services and deploy a container that can run multiple instances of those services. There is work

involved if you have a monolithic application, but it entails significantly less effort than rewriting does. If you plan to use a container, make sure it can handle your business application requirements, which may include message-ordering and long-running processes.

Note the word "services." There is a link between SOA and multicore—using services can be a key part of your concurrency model. Separating concurrency from application logic can simplify migrating existing applications to multicore, as well as enable more effective building of new concurrent applications. It also makes it much easier to reconfigure (rather than recode) your applications to continue optimizing them and to move to new generations of hardware, from two cores to four, eight, 16 and so on. Designing enterprise applications in a service-oriented architecture makes it easier to separate concurrency from application logic, so they work together.

C++ on multicore is great for high-performance, low-latency applications, mobile and embedded apps, and for massively parallel hardware. Why? This solution can provide the combination of low latency and low memory footprint (scale up) with high throughput (scale out). Not all applications have the requirement to scale in both directions, but for those that do, C++ on multicore can be a powerful combination.

Large-scale C++ applications are likely to be one of the biggest beneficiaries of the shift to multicore. Now this requires some planning, but it may not involve as much work as you think. Design a solid concurrency model, and your existing C++ applications can continue to serve you faithfully for years to come. ■

Patrick Leonard is vice president of product development at Rogue Wave, which sells a multicore-exploitive environment for C++ applications.

Patrick Leonard

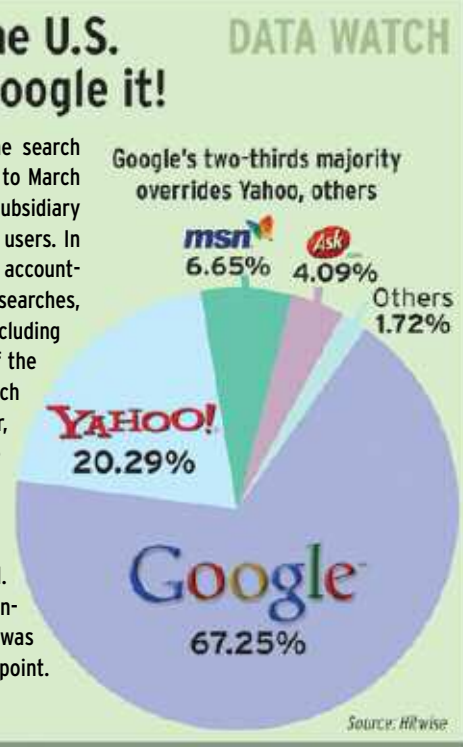


Guest View

Who dominates the U.S. search market? Google it!

Google continues its dominance of the search market in the United States, according to March figures from Experian. The Hitwise subsidiary said it sampled 10 million U.S. Internet users. In the four weeks ended March 29, Google accounted for more than two-thirds of all searches, according to Experian. Yahoo, MSN (including Live.com) and Ask.com—the only one of the trio to see its share grow from March 2007—divvied up most of the remainder, with 46 smaller players splitting up the residual crumbs.

In terms of year-on-year growth, Google continues to see its searches rise at a steady 5% rate, Experian said. Ask.com's numbers show faster expansion, but its 18% annual growth rate was based on a dramatically lower starting point.



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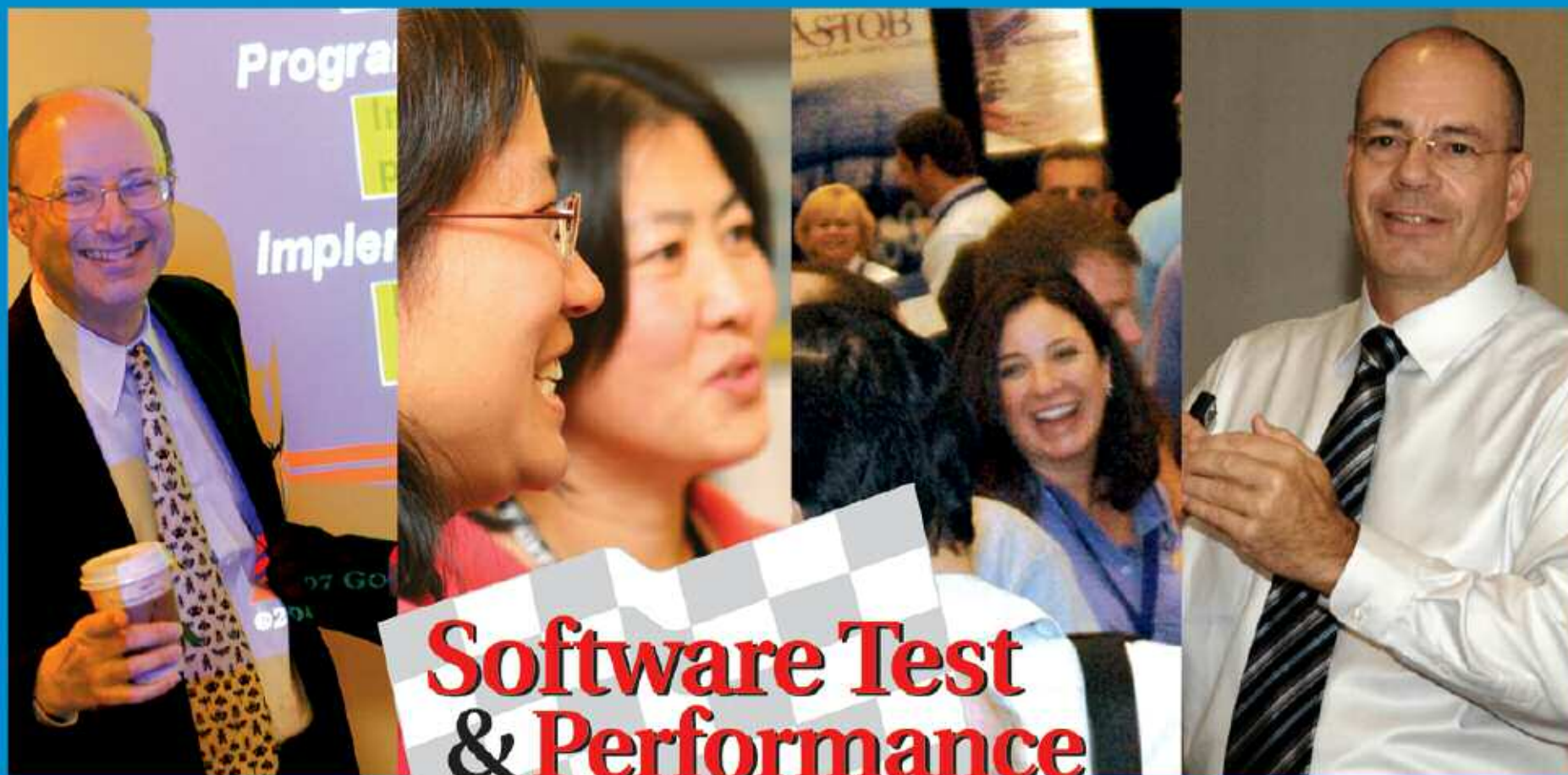
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30K + 110K = success or failure?

My recent column on Resolver Systems' Resolver One spreadsheet (March 15, page 32) drew quite a few comments, including one from former SD Times columnist Allen Holub. Allen's thesis: "I want to take exception to the notion that Python is adequate for a real programming project. The fact that 30K lines of code took 110K lines of tests is a real indictment of the language. My guess is that a significant portion of those tests are addressing potential errors that the compiler would have found in C#, or Java in turn triggered a flurry of Web postings on sites such as reddit.com and Hacker News on ycombinator.com.

I respect Allen's opinion, but his position took me aback. It seems self-evident that bringing a commercial application to market in two years counted as a success and that credit should be given to the tactics used, whatever they might be. As for Resolver One being a "real" programming project, I thought that was self-evident, too.

Even putting aside its exposure of Python to the end user, it's a fully functional spreadsheet. Although not directly comparable at the feature level, Steve McConnell recently quoted the 1989-1990 development of Lotus 1-2-3 version 3 and Excel 3 at 400K and 649K

lines of code with staff efforts of 260 and 50 staff years, respectively (tinyurl.com/353svp).

Allen's own newsletter (regrettably infrequent) quotes a mean level of productivity at 26 LOC/day/person. Personally, I primarily work with corporate teams, and primary application sizes of 10K to 50K lines of code are typical of applications developed in the past decade. This counts toward the idea that Resolver One is worthy of attention as a programming task. (On the other hand, Chandler Desktop, the Python-based PIM whose rocky development was documented by Scott Rosenberg in "Dreaming in Code," weighs in at more than 500K non-blank, non-comment lines.)

It's clear that Allen is not alone: The most common criticism in online discussions of the issue is the assertion that test-driven development is slower, first for the obvious reason that the time spent writing a test function is time that could be used on application code, and the less obvious (but more substantial) observation that test code itself will have incorrect assumptions, be misleading and require maintenance. In other

words, it's code, and it shares the non-accidental characteristics of all code.

In response, some suggested that meta-testing should be used to lower the volume of test code (I'm wary of test suites with high abstraction). Predictably, commenters squabbled over the distinction between type safety and explicit type declarations, a kerfuffle that shows no sign of abating in the four years since I lamented it as a distraction in this column (www.sdtimes.com/content/article.aspx?ArticleID=27644).

This discussion drove home the existence of a rift in development mind-sets. This rift is reminiscent of, and as substantive as, the rift that developed in the early 1990s between proponents of object-orientation and skeptics. There was much discussion of the "paradigm shift" required by OO programming. This shift is a wide-ranging mental readjustment of concerns and attentions and, on either side, it becomes very easy to talk right past each other. Too often this devolves into "they just don't get it" thinking. In the case of extensive unit testing, I think what's at play are two fundamentally different ways of viewing tests.

There are at least two ways of viewing

tests: as tools for discovering errors, or as gate measuring quality. There's no doubt that the software development tradition has favored the former view (after typing a line of code, everything that follows is "debugging"). This view is evident when people talk of the "need" for a test—a test is "needed" to discover something. But the Agile Paradigm sees change over time as a central issue; if it were still the 1990s, we would undoubtedly call it Change-Oriented Programming. A test is written, not to discover behavior, but to validate progress. In true test-driven programming, tests are written before the code, so they always fail once. But many tests are written that are expected to pass the first time they are addressed.

From within the Agile Paradigm, a new test is written that fails, some new code is written, the test passes—a one-way gate has been passed, progress has been made and credit accrues. From outside the paradigm, a test is seen as indicative of a problem that ought not to exist in the first place. The passing of the test is not seen as the salient point; the "need" for (i.e., existence of) the test is seen as evidence of low quality.

As is often the case with communication, just recognizing the existence of an impasse is critical to making a change. ■

Larry O'Brien is a technology consultant, analyst and writer. Read his blog at www.knowing.net.

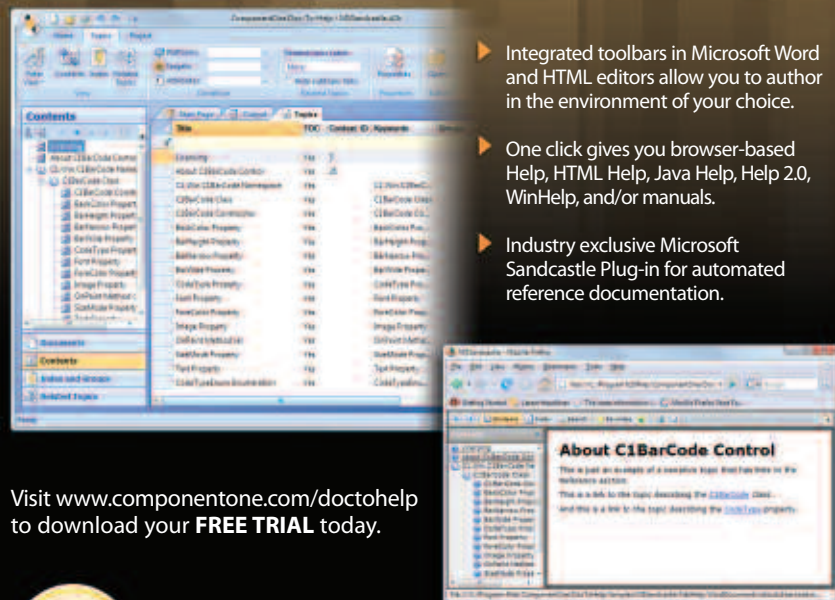
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Larry O'Brien

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WOA! SOA meets Web 2.0

Not sure if you've been paying attention, but there is a new term that's being tossed around these days: Web Oriented Architecture, or WOA. You can think of WOA as SOA meets Web 2.0, but perhaps it's not that simple. WOA may indeed lead to SOA and evolve differently, albeit using the same patterns. Let's get into this a bit.

As most of you know, the process of dragging SOA and the Web together has been a crusade of mine for some time now. This is occurring at a much faster pace than anticipated. Indeed, if you look at the most successful SOA deployments, most occur on the Web, not within the enterprise. It does not matter to me if you call this "The Global SOA," "Web 2.0" or "WOA," as long as the core value is understood.

So, if WOA is the bomb, where is SOA? I thought that Dana Gardner put it best in a recent blog post:

"The uptake of general-purpose service enablement is by no means a hockey stick trend line. The adoption patterns some five years into the SOA evolutionary path do not show a 'slam dunk' demand effect. The role, impact and importance of SOA are, in fact, ambiguous ... still. Many see it as merely an offshoot of EAI rather than a full-blown paradigm shift."

The ugly truth behind SOA, as we've discussed here a few times, is that it's a slow evolution, not a revolution. It's complex, expensive, but typically worth it if you hang in there. However, hanging in there is something that U.S. companies don't do well. Because tactical issues often trump strategic projects, SOA is slow on the uptake. Dana is correct: SOA is slow, WOA is fast. But maybe they are solving the same problems.

I really don't care if you do SOA on the Web, within the firewall or both. Indeed, the emerging Web demonstrates more of a hockey stick adoption pattern and is worth a look in the context of SOA. The world of Web 2.0 is innovating and experimenting at breakneck speed with social media, social networking, Ruby on Rails, SaaS, Python, REST and a mix of rich Internet application approaches, including AJAX.

Remember, there is a huge resource that is being created on the Web these days. This includes access to SaaS applications, such as Salesforce.com, that are better than their enterprise-bound counterparts, service marketplaces such as StrikeIron, and even mash-able appli-

cations that you can mix and match with other Web 2.0 or enterprise applications to solve business problems quickly.

What is changing quickly is that enterprises are finding that the path of least resistance is to build their SOAs on the Web, using Web resources, including content, Internet-delivered APIs and Web services. Once there is success with WOA, you'll see the same patterns emerging behind the firewall, or SOA. This is similar to the rise of intranet apps after the success of Internet/Web systems.

The general notion is that the Web provides another location for core business processes using outsourced infrastructure and reusable business processes accessible on-demand. These systems provide better development speed, access to prebuilt resources, and much more value when compared to traditional enterprise approaches. Thus, SOA is proving itself on the platform of the Web more so than within the enterprise these days: It's just faster, easier and provides more initial return on investment.

The use of Web-born resources, such as on-demand Web services, SaaS and

on-demand tools such as Google's new App Engine, is creating more of a grass-roots movement toward SOA/WOA. This movement is moving from the developers to the architects, not from the architects to the developers. The former is much faster.

The same pattern was seen with the rise of SaaS, which IT adopted only after there were so many SaaS users within its enterprise that it wanted to subsume and control the use of SaaS. I've seen IT leaders push back hard on SaaS, then soften after they had seen the value, or were forced to see it. There is always a not-invented-here issue, and you no longer can hug your server. Those who were in denial are coming around.

Web-born SOA, or WOA, is finding a similar adoption pattern. Composite applications will be and are being built within emerging on-demand tools, such as Google App Engine. Those applications will need information, services and APIs, also delivered on-demand over the Web. Moreover, enterprises will seek to externalize existing enterprise data to WOA as well. Thus, user management and security will remain a core issue. Indeed, we could see many enterprises running the majority of their business processes outside the firewall within just a few years. ■

Reach analyst David S. Linthicum at david@linthicumgroup.com.

SOA Watch



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SHORT TAKES

IT'S ALL ABOUT VIRTUALIZATION, baby! That seemed to be the focus of this year's Interop conference in Las Vegas, with 90% of the companies there selling virtualization servers, virtualization management software, Cat 5 cables for virtual servers, IP cameras for virtual servers, power supplies for virtual servers and even special hard drives and memory for virtual servers.



OK, I'm exaggerating. There were also companies selling "green computing" equipment, incomprehensible IT management/outsourcing solutions, network firewall appliances, servers, storage systems, IP telephony and SaaS/cloud computing stuff. But anyone who could think of any reasonable justification to hype virtualization did exactly that.

We can expect all this to calm down shortly. Yes, virtualization offers tremendous benefits to IT, from the data center to the developer's desktop. Yes, recent advances in multicore processors make virtualization more efficient. Yes, recent advances in hypervisors and management software are extending virtualization into new applications, and we should all pay attention to that.

But no, virtualization isn't the sine qua non of IT. It doesn't change the day-to-day role of databases, Web servers, messaging systems, commerce systems or other business applications—or of the jobs of the people who manage them. It's an implementation detail. An important one, yes, but soon virtualization will be an integral feature of every application and platform, much the way an IP stack or a SOAP interface became. And then we can stop hearing it shouted from every rooftop—and trade-show booth.

—Alan Zeichick

IT IS USUALLY TAKEN as flattery if an innovation becomes a verb, as the people at TiVo can attest. But Microsoft doesn't seem to be flattered by the verbing of its MSN instant-messaging service. In the midst of a lawsuit against a company in The Netherlands to protect its MSN brand name, Microsoft said it would ask the publishers of the Dutch dictionary Van Dale to delete the verb "msn-en"—or "MSN-ing"—from its latest editions and, with it, its status as a generic term. Van Dale is the most popular Dutch dictionary publisher, whose history dates to 1828.



Meanwhile, a judge was expected to rule May 7 (after this edition went to press) on whether Unicaresoft Corp. can use the name Benzoy for a product that helps parents control their children's use of instant messaging. Microsoft argued that the "MSNlock" name, apparently the original name of Benzoy, violates its protected trademark. Because MSN is the dominant IM service in the Netherlands, Unicaresoft argued that it needs to use the term in order to market its security feature.

Founder Carola Eppink noted that other non-Microsoft domains use the MSN name, but speculated that Microsoft went after her company because use of Benzoy would limit MSN traffic and, therefore, ad revenue. News reports quote Microsoft as denying the allegation.

—Robert Mullins

I USE AN IMAC AT WORK and absolutely love it, but Old Reliable at home runs Windows XP. It is a conglomeration of parts from my last box attached to a new motherboard, but it runs like a dream. Windows Vista is not compatible with my wireless adapter,

and its power management clashed with my BIOS.

The obvious solution was to stick with XP and upgrade it to SP3. Since it froze after the first reboot (I suspect SP3 might have issues with NOD32 antivirus), it is running as smoothly as ever. XP is fine, but when Old Reliable nears death, I will copy my hard drives to a USB drive and purchase a Mac. Steve Jobs, you have a switcher.

—David Worthington

CRAFTSMANSHIP HAS NO substitute, and that childhood lesson was reinforced recently while I was reading a Q&A session with the design director of NYTimes.com, Khoi Vinh. "Mr. Vinh," as he's known in Times style, is responsible for the framework behind The New York Times' Web site, arguably one of the most visited—and most influential—news sites around.

One of the first questions was about how the site maintains its consistency across platforms given the way different browsers handle HTML and CSS. Well, there's no magic tool or secret template. According to Vinh, most of the work is done using a text editor rather than a WYSIWYG tool. It turns out to be not only better but also faster. Of course, it doesn't hurt that his crew is intensely committed to how the site appears.

Years ago, I did a fair amount of work with various markup languages: proprietary typesetting codes; SGML; and, finally, at the dawn of the Web during the early 1990s, HTML. I was using XyWrite as my text editor then, and to be honest, I still miss it, because it was a tool that let one craft code rather than vomit out strings of markup commands.

—P.J. Connolly

BUSINESS BRIEFS

IBM plans to acquire **Infodyne**, a Park Ridge, Ill.-based privately held concern focused on data integration in delivery, Big Blue said. Infodyne's software helps trading firms process large volumes of data in microseconds, IBM said. Infodyne can accumulate data from hundreds of sources and standardize it . . . **Oracle** completed its acquisition of **BEA Systems**, adding its application infrastructure products. After its first offer was rejected, Oracle raised its bid to US\$8.5 billion from \$6.7 billion . . . **Apple** bid US\$278 million to acquire microprocessor maker **PA Semi**. Potential benefits for Apple would include a new chip for future iPhone models and portable computing opportunities. One of PA Semi's main products is the dual-core, 64-bit PWRficient processor, which consists of a CPU, a memory system and I/O . . . **Informatica**, a provider of data integration software, reached a definitive agreement to acquire **Nokia** unit **Identity Systems**, an identity-resolution technology specialist. Identity's technology provides search and matching to find information about individuals in an organization.

EARNINGS: AMD posted a loss for its sixth consecutive quarter, though the amount narrowed to US\$358 million from \$611 million for the year-ago quarter. Net revenue was \$1.51 billion for the first quarter of 2008, down from \$1.77 billion for the year-earlier quarter . . . **Google** had revenue of US\$5.19 billion for the first quarter of 2008, which ended March 31, an increase of 42% from the year-earlier quarter. Net income also rose, to \$1.31 billion from \$1 billion in the first quarter of the year before . . . **VMware** said its first-quarter net income was US\$43 million, up from \$41 million in the same quarter the year before. Sales rose 69%, to \$438 million, which was about \$17 million higher than what analysts had predicted for the quarter . . . **EMC** said its revenue for the first quarter totaled US\$3.47 billion, an increase of 17% over the revenue reported in the year-earlier quarter. First-quarter net income was \$268.8 million, which included a \$79.2 million non-cash charge for research and development resulting from acquisitions completed during the quarter. ■

EVENTS CALENDAR

IDUG 2008 Dallas INTERNATIONAL DB2 USERS GROUP conferences.idug.org/na	May 18–22
BREW 2008 San Diego QUALCOMM brew.qualcomm.com/brew/brew_2008	May 28–30
RailsConf Portland, Ore. O'REILLY MEDIA en.oreilly.com/rails2008	May 29–June 1
IBM Rational Software Development Conference Orlando, Fla. IBM RATIONAL www-306.ibm.com/software/rational/events/rsdc2008	June 1–5
TechEd 2008 Developers Orlando, Fla. MICROSOFT www.microsoft.com/events/teched2008/developer/default.aspx	June 3–6
Apple Worldwide Developer Conference San Francisco APPLE www.developer.apple.com/wwdc	June 9–13
TechEd 2008 IT Professionals Orlando, Fla. MICROSOFT www.microsoft.com/events/teched2007/itpro/default.aspx	June 10–13
eBay Developers Conference Chicago EBAY pages.ebay.com/devcon	June 16–18
USENIX 2008 Boston USENIX www.usenix.org/events/usenix08	June 22–27
Software Industry Conference Boston SHAREWARE INDUSTRY AWARDS FOUNDATION www.sic.org	July 17–19
Open Source Convention Portland, Ore. O'REILLY MEDIA www.conferences.oreilly.com/oscon	July 21–25
Entity Data Management New York FIMA www.wbresearch.com/fimaedm	July 22–23
ESRI International User Conference San Diego ESRI www.esri.com/events/uc/index.html	August 4–8
Software Test & Performance Conference Boston BZ MEDIA www.stpcon.com	September 24–26
EclipseWorld 2008 Reston, Va. BZ MEDIA www.eclipseworld.net	October 28–30

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